

HELMINTHOLOGICAL ABSTRACTS

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Vol. II, No. 3.

135—Agriculture and Live-Stock in India.

- a. BHALERAO, G. D.—“The most practical methods of combating parasitic gastritis and fluke infestation of ruminants under field conditions in India.” III (4), 354-360. [1933.]

(a) In India the chief helminth problems of farm-stock are due to *Mecistocirrus digitatus* and *Haemonchus contortus*. The preventive measures suggested by Bhalerao include the drainage of wet boggy land, frequent change of stock to fresh pastures, fallowing of pastures for 12 months, rotation of ruminants and equines on the same ground, exclusion of stock from manure heaps, removal of infected stock to stables or dry yards free from vegetation, good and abundant diet, a clean water supply, segregation of young animals, use of ensilage crops, and employment in India of extra men to handpick from the pastures droppings which could then be used dry as fuel. In addition anthelmintics should be used. Of these copper sulphate is the cheapest and most effective. In India fluke is spread by *Lymnaea acuminata* and the preventive measures advocated include land drainage, use on the pastures of salt, slaked lime, iron sulphate or copper sulphate. The last is the most effective and can be used diluted, viz., 30 lbs. of CuSO_4 mixed with 120 lbs. of sand per acre. The author suggests an examination of the anthelmintic value of the wild ferns of India, specially of the margosa plant. ..

R.T.L.

136—American Journal of Cancer.

- a. MENDELSON, W.—“Cultural characteristics of cysticercus cysts and 2 cysticercus tumors.” XVII (2), 442-461. [1933.]

(a) By means of tissue culture technique Mendelsohn has studied two of the neoplasms produced experimentally by Bullock & Curtis in the liver of rats by means of *Cysticercus fasciolaris*. The paper gives in detail the cytological and cultural characteristics of the cells which migrated out from explants of cysticercus sarcomata.

R.T.L.

137—American Journal of Hygiene.

- a. SHORB, D. A.—“Host-parasite relations of *Hymenolepis fraterna* in the rat and the mouse.” XVIII (1), 74-113. [1933.]
- b. FAUST, E. C.—“Experimental studies on human and primate species of Strongyloides. II. The development of Strongyloides in the experimental host.” XVIII (1), 114-132. [1933.]
- c. STUMBERG, J. E.—“The detection of proteins of the nematode *Haemonchus contortus*, in the sera of infected sheep and goats.” XVIII (2), 247-265. [1933.]
- d. BACHMAN, G. W. & MOLINA, R. R.—“Resistance to infestation with *Trichinella spiralis* in hogs.” XVIII (2), 266-294. [1933.]

(a) Shorb has carried out an extensive study on the bionomics of *Hymenolepis fraterna* with particular emphasis on the relation of the parasite to the host.

Strains of *H. fraterna* from wild rats and white mice were used in the experiments and such questions as viability of the eggs, rate of growth, longevity, egg production, host resistance, differences in the strains used, and the effect of diet are fully dealt with. The author considers that the differences between the two strains used in his experiments are no less than those existing between the human and rodent forms of this parasite and that *H. fraterna* might therefore be regarded as a synonym of *H. nana*.

D.O.M.

(b) This experimental study by Faust is the second part of an extensive investigation on the development of *Strongyloides*.

Following the work of Kreis (1932) who found a male in the parasitic generation, the author, in his experiments on dogs, has traced the successive stages of development in the various organs of the host, and has obtained results which constitute an important contribution to our knowledge of the life-cycle of these parasites. It is suggested that the direct type of development results from unfertilized eggs which follow from the exhaustion of spermatozoa in the parasitic female. Fertilized eggs, on the other hand, proceed to an indirect type of development.

D.O.M.

(c) Stumberg describes a method which demonstrates the presence of Haemonchus protein in a dilution of 1 : 50,000 by means of an anaphylactic test. He concludes therefore that sufficient of this protein is absorbed into the circulating blood of heavily infected sheep and goats in unaltered form to react with specific antibodies in an anaphylactic test. The test consists in the production of a rise in relative percentage and absolute number of eosinophiles in the blood of sensitised guinea-pigs, following the injection of extract.

P.A.C.

(d) Bachman and Molina have demonstrated a resistance to super-infestation with *Trichina spiralis* in pigs which they believe is due to a retention of antibodies and a local mobilisation of leucocytes and cells of the reticulo-endothelial system in the intestinal wall of the host.

Hogs were fed trichinosed meat at known intervals of time and the blood reactions followed. The first infection was followed by a definite eosinophilia and a high precipitin titre. Similar though less well marked reactions occurred after subsequent infections. They were unable to produce any immunity previous to infestation.

P.A.C.

138—Annales d'Hygiène Publique, Industrielle et Sociale.

- a. MARCANDIER & PIROT, R. — "Les rats de Toulon et leurs parasites." XI (1), 14-25. [1933.]

(a) Marcandier and Pirot have made a survey of the ecto- and endo-parasites of rats from warships, and from the port of Toulon. Their paper is mainly concerned with arthropod and protozoan parasites, but includes certain helminthological observations. *Hepaticola hepatica* was never found

in 496 rats (*M. rattus* 245, *M. norvegicus* 251) collected from on shore and on ships. Elsewhere (Saigon) this parasite appears to be rare in rats collected from ships. *Cysticercus fasciolaris* was found in 2 per cent. of the *M. norvegicus* from ships, and in 4.3 per cent. of those from on shore, but never in *M. rattus*. True cancer was never found in 500 rats, but gastric and hepatic adenomata were associated with *Protospirura muris* in one rat. *Xenopsylla cheopis* is alleged to be the intermediate host of this parasite. S.G.S.

139—Annales de Parasitologie Humaine et Comparée.

- a. PENSO, G.—“Nouvelles considérations sur la biologie des oxyures.” XI (4), 268-270. [1933.]
- b. CORDERO, E. H.—“Sur quelques acanthocéphales de l'Amérique méridionale I.” XI (4), 271-279. [1933.]
- c. NEVEU-LEMAIRE, W.—“Les arthropodes hôtes intermédiaires des helminthes parasites de l'homme.” (À suivre). XI (4), 303-319. [1933.]
- d. MICHAJLOW, W.—“Les stades larvaires de *Triacnophorus nodulosus* (Pall.) I. Le *Coracidium*.” XI (5), 339-358. [1933.]
- e. SKRJABIN, K. I.—“*Kutassicaulus* n. g., nouveau représentant des nématodes de la sous-famille des *Dictyocaulinae* Skrjabin 1933.” XI (5), 359-363. [1933.]
- f. LUKASIAK, J. & STRANKOWSKI, M.—“*Capillaria polonica* n. sp., parasite de la vessie urinaire de *Mus norvegicus* Erxl.” XI (5), 364-369. [1933.]
- g. NEVEU-LEMAIRE, M.—“Les arthropodes hôtes intermédiaires des helminthes parasites de l'homme.” XI (5), 370-402. [1933.]

(a) Penso supplements his previous discussion [*vide* Helm. Abs. I, No. 39e] on a new theory of the life-cycle of oxyurids which are said to be capable of multiplying without leaving the body of the host.

In *Oxyuris ambigua* and *O. vermicularis* development is accomplished entirely within one and the same individual in two stages: (1) period of egg-laying and embryonic phase intraparietally, and (2) adult phase and period of copulation within the intestinal lumen. Thus, treatment by drugs against eggs within the intestinal mucosa is difficult. Although the author has not encountered free embryos within the intestinal mucosa he cites work done by Wetzel, using *Dermatoxys veligera* of the hare, who has demonstrated them in this site but whose interpretation of their presence there is quite different from that of Penso. J.N.O.

(b) Cordero reports, for the first time from Uruguay, 7 species of acanthocephalids collected in the neighbourhood of Montevideo, 3 of them having been recovered from new hosts.

Acanthocephalus lutzi (Hamann, 1891), which the author removes from the genus *Echinorhynchus* on morphological grounds and to which some prominence is given, is reported from 3 new Batrachian hosts while *Corynosoma semerme* (Fors., 1904) is harboured by the Fur-Seal *Arctocephalus australis*, and *Oligacanthorhynchus spira* (Dies., 1851) by the snake *Rhadinaea fusca*, both being new hosts. J.N.O.

(c) In the second part of his review of the arthropods known to be capable of acting as intermediate hosts for the helminth parasites of man [*vide* Helm. Abs. II, No. 60e], Neveu-Lemaire deals with the following insect vectors: lice, cockroaches, earwigs, bedbugs, numerous beetles, moths and fleas. Under each insect species the parasite recorded from it is mentioned. J.N.O.

(d) Michajlow, by examining numerous intestines of the pike, *Esox lucius* L., from Warsaw markets during 1930, 1931 and 1932, has been able to make very detailed investigations on the morphology of the coracidium of *Triaenophorus nodulosus*, which is considered the commonest parasite of the pike, and to demonstrate periodicity in appearance and sexual maturity of this cestode.

About 76 per cent. of fish examined were infested, mature strobilae being present from mid-November to mid-May and disappearing during the summer months. The intestine generally contained only adult or young forms, all at the same stage of development; exceptionally did they occur together. Hatching of the coracidium is accelerated in April and May, taking 2-4 days, but delayed in winter to 7-8 days. By increasing the depth of water in cultures development is arrested. The disposition and movements of the cilia and dimensions of this larval stage, the free life of which is 2-3 days, are detailed. By the use of different staining methods it is possible to distinguish the several components of the coracidium, such as the two embryonic membranes, between which occur cells of the embryonic envelope, some nucleate, others non-nucleate, and the contained onchosphere to which a third and more delicate membrane adheres. The complicated internal structure of the onchosphere is described in detail. The embryonic hooks may be abnormal both in numbers (7, 5 or 4) and in shape. [Readers should compare this work with that on *T. crassus*, vide Helm. Abs. I, No. 39d.] J.N.O.

(e) Skrjabin gives a detailed description of *Kutassicaulus andreewoi* n.g., n.sp., from male specimens only, recovered from blood vessels of the liver of *Phoca hispida*, captured in the southern region of the Sea of Okhotsk, and from the lumen of the bronchi of *Phoca foetida*, another seal from the White Sea.

Kutassicaulus differs from *Dictyocaulus*, its closest relation, in having the dorsal rays of the bursa at first independent but uniting in their distal portions in the mid-line to form a common stem whereas in *Dictyocaulus* the dorsal rays, distally bifid or trifid, preserve their independence throughout their length. These two genera form the only representatives of the Dictyocaulinae, one of three new subfamilies created by Skrjabin. The family Metastrongylidae Leiper, 1908, thus revised by the author in a table, now includes the subfamilies (1) Dictyocaulinae, (2) Metastrongylinae Leiper, 1908, (3) Crenosomatinae and (4) Synthetocaulinae. Diagnoses of the subfamily Dictyocaulinae and of the genus *Kutassicaulus* are given. J.N.O.

(f) Lukasiak and Strankowski give a detailed description, based on 5 female worms, of *Capillaria polonica* n. sp., discovered in the bladder of *Mus norvegicus*.

Literature records show that 7 *Capillaria* species are known from the bladder of various mammals, 3 of them, viz: *Capillaria schmidtii*, *C. papillosa* (considered by Hall to be the same species) and *C. polonica*, being reported from *Mus norvegicus*. A useful table exhibits the essential differences between *C. annulosa*, *C. papillosa* and the new species. The authors consider

that the finding of numerous unsegmented eggs in the mucosa of the bladder is explained by the absence of male specimens. J.N.O.

(g) Neveu-Lemaire, in a third and concluding part of his review [*vide* Helm. Abs. II, Nos. 60e and 139c], deals exclusively with insects of the Order Diptera which act as vectors of helminths reported from man.

The classification, which includes short descriptions of morphological characters, shows that the flies principally concerned are Tabanids, Simuliids, Chironomids, Culicines and Anophelines. A useful list of the human parasites with their respective insect vectors and a bibliography of 108 references, covering the three parts of this review, are given. J.N.O.

140—Annali d'Igiene.

- a. PENSO, G.—“Studi sull' anchilostomiasi. I. Concimi chimici nella profilassi dell' anchilostomiasi nelle campagne.” XLIII (5), 352-360. [1933.]

(a) Penso has tested the effects of various artificial manures on the development of the free-living stages of hookworms.

All the artificials retard development of the eggs, and calcium cyanamide and ferrous sulphate will kill hatched larvae in a few hours even when used in solutions (1 per cent. and less) dilute enough for agricultural practice. Ferrous sulphate is the most suitable agent for adding to cesspools in those market-gardening areas of Italy where night soil is commonly used as a fertilizer; not only does it kill the hookworm larvae but it also adds to the value of the night soil, and prevents putrefaction. B.G.P.

141—Annals and Magazine of Natural History.

- a. SANDGROUND, J. H.—“Descriptions of two new parasitic nematodes from a West African ‘hairy frog’ (*Ranidae*).” (Ser. 10), XII (67), 29-33. [1933.]
b. FOGGIE, A.—“On a cestode parasite of the domestic pigeon (*Columba livia*).” (Ser. 10), XII (68), 168-172. [1933.]

(a) Sandground describes a new *Amplicaeum* (Ascaroidea) and a new *Africana* (Oxyuroidea), both from *Astylosternus robustus* (Boulenger), the “hairy frog” from the Cameroons.

Amplicaeum novempapillatum n. sp. is characterized by the presence (in the male) of 9 pairs of preanal, and 3 pairs of postanal, papillae and of spicules 1.15 mm. long, which is longer than in any other species. *Africana astylosterni* n. sp. possesses a distinctive pattern of caudal papillae in the male. It is the first species of this genus of reptilian parasites to be recorded from a frog. The writer also records an *Oxysomatium* from the same host and considers it to be probably *O. chamaeleonis* Baylis, 1929. S.G.S.

(b) Foggie gives a detailed morphological description of *Raillietina* (*Skrjabinia*) *columbae* (Fuhr. 1909) based on material from pigeons in N. Wales and Edinburgh, and finds certain points of difference from Fuhrmann's description of the holotype. Thus Foggie describes 90 rostellar hooks 9 μ long, as against 120 hooks 11 μ long in the holotypes. He concludes, however, that the British specimens are identical with the holotype. S.G.S.

142—Annals of Surgery.

- a. ALLEN, S. S. & LOVELL, H. W.—“Cysticercus of brain.” xcvii, pp. 1-9. [1933.]
- b. PICKHARDT, O. C.—“Removal of Echinococcus cyst; its influence on specific blood reaction.” xcvii, pp. 119-121. [1933.]

(a) Two types of cerebral cysticercosis are reported, viz., one in which a solitary cyst obstructed the aqueduct of Sylvius and the tumour could be located by ventriculography; the other, one of generalized cysticercosis of the brain in which the symptoms were those of a brain tumour localised to one region of the cerebrum. R.T.L.

(b) In this case Pickhardt noted a consistently negative complement fixation test, both pre- and post-operatively except on one occasion, and a strongly persistent positive Wassermann reaction in spite of intensive antispecific treatment pre-operatively. Hydatid disease has not hitherto been included among the various conditions which may cause a positive Wassermann. R.T.L.

143—Annals of Tropical Medicine and Parasitology.

- a. HUDSON, E. H. & YOUNG, A. L.—“Hookworm disease in the Arab of the Middle Euphrates.” xxvii (2), 207-212. [1933.]
- b. LANE, C.—“The taxies of infective hookworm larvae.” xxvii (2), 237-250. [1933.]

(a) Hudson and Young give an account of their experience with hookworm disease in the Middle Euphrates, a disease stated to be hitherto unrecognized in this region.

Of 5,400 patients admitted to the outpatient clinic at Deir-ez-Zev, 109 were found by stool examination to be infected with hookworm. The paucity of cases infected with *Ascaris lumbricoides* and *Taenia saginata* is noted. A 38 per cent. infection with hookworm was found in 306 Arab labourers 60 miles east of Deir-ez-Zev. J.J.C.B.

(b) Clayton Lane discusses the tropisms of infective hookworm larvae as revealed by the experimental work of Fülleborn in 1924 and 1932 [Helm. Abs. I, No. 279a] and that of himself in 1930.

He rejects the possibility of hydrotropism in an organism which lives in water (if only a microscopic film of water) and explains the tufting of larvae under moist conditions as a simple migration outwards into the droplets of dew that are formed [thigmotropism?]. Fülleborn's rheotropism is a purely physical effect whereby the heavier anterior end of the larva comes to face the current. Lane regards chemotropism as still *sub judice*: at least it cannot be explained away as due to agglutination, as Fülleborn strove to do; and he is sceptical regarding tropisms due to oxygen and other gases. He still postulates a positive thigmotropism causing larvae to orientate themselves at right angles to a stable obstacle with which the head is in contact. On the other hand, the rhythmical swaying in unison of tufted larvae may involve a negative thigmotropism acting along the dorsal and ventral surfaces. The existence of thermotropism, as distinct from mere activation by heat, is conceded, but this tropism is erratic and weaker than thigmotropism. B.G.P.

144—Annual Report of the Department of Plant Pathology, Seale-Hayne Agricultural College.

- a. ANON.—“Annual report (ninth) of the Department of Plant Pathology.” No. 40, 43 pp. [1933.]

(a) *Anguillulina dipsaci* is reported in hyacinths in East Devon and in wild bluebells in South Devon. R.T.L.

145—Archiv für Pflanzenbau.

- a. RADEMACHER, B. & SCHMIDT, O.—“Die bisherigen Erfahrungen in der Bekämpfung des Rüben nematoden (*Heterodera schachtii* Schm.) auf dem Wege der Reizbeeinflussung.” x (2), 237-296. [1933.]

(a) Rademacher and Schmidt are here concerned with the control of *Heterodera schachtii* on sugar beet by chemical means either by stimulating the hatching of cysts in the soil in the absence of host plants or by exerting a lethal action on the parasite; many substances achieve the latter in strong and the former in weak solutions.

The effects of 321 substances on cysts *in vitro*, observed by the authors and by Rensch and Nebel, are tabulated, the substances including organic compounds, oxidizing and reducing agents, products of distillation or combustion of organic matter and various technical bye-products. Of these, 35 were further tested by the authors in pot experiments, the index being the number of larvae which had migrated to the rootlets of rape sown in the pots and allowed to grow for 10 days. Finally 14 substances were tested in the field over a number of years. Factors investigated include duration of effect, vertical extent in the soil, effects on lower and higher plant life, method of application, etc.

Substances singled out for further investigations are the “heavy” and “light” wood-distillates of the Holzverkohlungs A.-G. (Constance), the “crude condensate” of the coal-tar distillation process, saprol, chloride of lime, and the “tar water” from the dry distillation of lignite. The substance selected must be used in large quantities, well mixed with the soil, and used in conjunction with other methods over a number of years. Even then the result is likely to be control rather than complete eradication.

B.G.P.

146—Archiv für Schiffs- und Tropen-Hygiene.

- a. HSÜ, H. F.—“On *Thelazia callipaeda* Railliet and Henry, 1910, infection in man and dog.” xxxvii (8), 363-369. [1933.]

(a) A set of detailed measurements is given by Hsü of specimens of the eyeworm *Thelazia callipaeda* from man and from the dog in China. These and other morphological details confirm the view that infections in man and the dog are due to the same species. R.T.L.

147—Archives of Dermatology and Syphilology.

- a. MCCARTHY, L.—“Creeping eruption due to *Ankylostoma braziliense*.” xxvii (3), 490-497. [1933.]

(a) McCarthy reports a case from Colombia, of creeping eruption caused by a larva identified as *Ancylostoma braziliense*.

Photomicrographs are shown of a section through the larva lying *in situ* in the epidermis. The migration of the larva during two and a half months' activity was 9 cm. The origin of the infection, its histopathology and successful treatment are described. J.J.C.B.

148—Australian Veterinary Journal.

- a. ROSS, I. C. & GORDON, H. McL.—“Nutritional factors affecting resistance to Haemonchosis.” ix (3), 100-107. [1933.]
 b. BELSCHNER, H. G. & EDGAR, G.—“Observations on the treatment of Trichostrongylosis in young sheep.” ix (4), 138-149. [1933.]
 c. EDGAR, G.—“Some observations on Trichostrongylosis of young sheep.” ix (4), 149-154. [1933.]

(a) Ross and his colleagues have carried out experiments to test the influence of nutrition on the resistance of sheep to haemonchosis.

Although an immunity often occurs, it was found that lambs may still remain susceptible after a heavy infection with *Haemonchus contortus*. There were indications, in old sheep, that diet deficiencies had to be severe enough to cause loss in weight before the resistance to the parasites could be broken down, while in some cases, certain types of resistance were found which could not be influenced by nutritional factors. These are considered to be of genetic origin. D.O.M.

(b) Belschner and Edgar carried out experiments on the effect of copper sulphate, copper sulphate and mustard, and carbon tetrachloride as anthelmintics against the smaller Trichostrongyles of sheep. These drugs were found to be without demonstrable effect on the parasites and emphasis is consequently placed on the value of good husbandry and adequate nutrition rather than on treatment for controlling these worms. D.O.M.

(c) Edgar carried out a survey of the helminths of sheep in New South Wales and found that the smaller Trichostrongyles often cause very serious damage and even death. A marked loss in weight follows a heavy infection with these small worms but a rapidly developing anaemia is not a feature as it is in haemonchosis. There were indications of an immunity when the sheep were about a year old. D.O.M.

149—Bulletins de la Société de Pathologie Exotique.

- a. ALEXEIEFF, A.—“Sur les facteurs déterminant le développement des oeufs d'*Ankylostomes*.” xxvi (7), 930-934. [1933.]

(a) Alexeieff investigated experimentally the development of eggs of *Necator americanus* in the absence of oxygen, and attempted to infect a cat with hookworms by feeding it with female hookworms in which the uteri contained embryonated eggs or lately hatched rhabditiform larvae.

He concludes from his experiments that the absence of oxygen does not inhibit the development of the eggs but that it is necessary in order to set in motion the initial stages of segmentation, viz., 4-8 cell stage to blastula stage. A cat was fed on three occasions with ankylostomes in which numbers of hatched larvae or embryonated eggs were present in the body. After the first inoculation symptoms were exhibited by the cat which are regarded by the author as resulting from migration of the larvae in the bronchi. The absence of symptoms following subsequent inoculations are explained as being due to the presence of an acquired immunity. The larvae were not recovered either in the vomit or in the stools, and subsequent stool examinations also proved negative. J.J.C.B.

150—Canadian Journal of Research.

- a. NEWTON, W., HASTINGS, R. J. & BOSHER, J. E.—“Sterilization of narcissus bulbs by immersion in silver nitrate-potassium cyanide solution in vacuo.” IX (1), 31-36. [1933.]
- b. NEWTON, W., HASTINGS, R. J. & BOSHER, J. E.—“Nematode infestation symptoms on barley as a means of determining the efficiency of chemicals as lethal agents against *Tylenchus dipsaci* Kühn.” IX (1), 37-42. [1933.]
- c. McLEOD, J. A.—“A parasitological survey of the genus *Citellus* in Manitoba.” IX (2), 108-127. [1933.]

(a) Newton, Hastings and Bosher found that a solution of silver nitrate 0.05 per cent. and potassium cyanide 0.15 per cent. by weight destroyed nematodes and fly larvae in narcissus when forced into the bulbs by an evacuation process, while producing no significant injury to growth under greenhouse conditions. Under conditions of field growth this treatment resulted in a reduction of infection from 26.8 per cent. to 1 per cent. and the plants showed no evidence of injury to foliage or blooms. Silver nitrate solution used alone proved useless as a commercial measure of control owing to its instability. M.J.T.

(b) Newton, Hastings and Bosher found that, of 100 chemicals tested, only phenol, silver nitrate and potassium or sodium bisulphite were lethal in dilute solutions to *Tylenchus dipsaci*.

Barley was used as a means of testing the viability of the nematodes following chemical treatment. Germination at low temperature under high light conditions gave the best results, symptoms of nematode infestation appearing on the leaves in about a month. The white masses of nematodes from the basal plates of diseased bulbs were used as inoculum. M.J.T.

(c) McLeod reports on the results of a parasitological survey of gophers of the genus *Citellus* (3 spp.) in Manitoba, based on the examination of 236 individuals from an area of about 80,000 square miles.

The investigation was carried out in connection with the apparent occurrence of cyclic periods of population density amongst the gophers, with a view to ascertaining whether their parasitic fauna is responsible for their destruction, and whether these parasites are of medical or veterinary importance.

Five species of ectoparasites were found, which have previously been recorded, and eight helminths, of which six species, viz., *Prochoanotaenia spermophili*, *Weinlandia citelli*, *Rictularia citelli*, *Spirura infundibuliformis*,

Physaloptera spinicauda and *Moniliformis spiradentatis* are described as new. No Trematoda nor larval Cestoda were found. The pathogenicity of four of the helminths is described. As potential transmitters of human disease, *Dermacentor venustus* and *Ceratophyllus bruneri* are discussed in relation to their common occurrence in gophers. J.J.C.B.

151—Chinese Medical Journal.

- a. FENG, L. C.—“Household mosquitoes and human filariasis in Amoy, South China.” XLVII (2), 168-178. [1933.]

(a) Feng states that *Culex fatigans* is the only mosquito found infected with microfilariae in Amoy. It is not so good a carrier as *Anopheles hyrcanus* var. *sinensis* and the scarcity of the latter may explain the low incidence of filariasis there. Ten cases of filariasis from Huchew, Chekiang Province, all proved to be infected with *F. malayi* not *F. bancrofti*. R.T.L.

152—Clinica Veterinaria.

- a. CECCHINI, A.—“Sulla diffusione dell'echinococcosi in Sardegna con speciale riguardo alla provincia del Littorio.” LVI, 265-281. [1933.]

(a) Cecchini finds that hydatid is serious and widely distributed in both man and beast in Sardinia—especially in sheep where the infection may reach 91.45 per cent.

Cattle are only slightly less infected, pigs and goats much less so. Foxes as well as dogs carry the adult parasite. He advocates rigid control of all dogs, both stray and otherwise, the construction of public abattoirs, and publicity campaigns among rural populations. T.W.M.C.

153—Comptes Rendus des Séances de l'Académie des Sciences.

- a. DORIER, A.—“Sur la larve de *Parachordodes violaceus* (Baird).” CXCVII (6), 460-462. [1933.]
b. JOYEUX, C. & BAER, J. G.—“Le réencapsulement de quelques larves de Cestodes.” CXCVII (7), 493-495. [1933.]

(a) Dorier describes the morphology and makes some experimental observations on the biology of the larva of *Parachordodes violaceus*. Morphological characters are pointed out which enable the larva to be distinguished from the larvae of other Gordiaceae.

The larva passes into the quiescent state soon after hatching, but unlike that of *Gordius aquaticus* does not encyst. Treatment with physiological solution causes the larva to renew activity for a few hours, and a similar result was obtained by treating them with digestive juices from certain animals, viz., *Asellus aquaticus*, *Lithobius forficatus* and *Trutia iridea*. In the quiescent state the larva can remain alive in moist air for six months. Whilst admitting the artificial conditions in his experiments, the author states his results to be in support of the theory that the hosts of *P. violaceus*, viz., terrestrial Coleoptera, become infected by the direct method.

J.J.C.B.

(b) Joyeux and Baer describe the experimental production of re-encystment of larvae of Cyclophyllid cestodes, a phenomenon hitherto only studied in Pseudophyllid forms.

Having observed that carnivores harbouring adult *Mesocestoides* in their intestines, also on some occasions have the larval stages of this genus, i.e., *Tetrathyridium*, infesting the serous membranes—a stage which normally occurs in rodents—they argue that these larvae must have re-encysted, whilst others had developed to the mature stage.

To find out experimentally if *Tetrathyridium* would re-encyst, they fed larvae from a snake, to frogs and wall lizards. After 48 to 72 hours the larvae were found in the intestinal contents and stools, but the scolices, which are normally invaginated in the larvae, were missing. These were found after 7 days at the surface of the intestinal wall, by which time they were developing a new body. Normal size and encystment in the peritoneal tissue was complete by 37 days. An attempt to produce a second encystment was not successful.

They also succeeded in obtaining re-encystment of the larvae of *Diplopylidium acanthotetra*, taken from *Zamenis hippocrepis*, on feeding them to *Lacerta muralis*. The process is similar to that of *Tetrathyridium* except that the scolex remains attached to the larva. J.J.C.B.

154—Comptes Rendus des Séances de la Société de Biologie.

- a. TRAVASSOS, L.—“Note sur les Strongyloïdes de vertébrés a sang froid.” CXIII (27), 1279-1280. [1933.]
- b. DÉVÉ, F.—“La souris blanche, animal réactif pour les inoculations échinococciques. Un essai de sérothérapie anti-échinococcique aspécifique.” CXIII (28), 1443-1445. [1933.]

(a) Travassos describes the dioecious forms of a *Strongyloides* species from *Ophiodes striatus* and, until the monoecious form can be examined, he considers that the parasite should be regarded as identical with *S. pereraei*. D.O.M.

(b) Dévé has successfully infested white mice with hydatid by subcutaneous and intraperitoneal injections of hydatid sand. Small secondary cysts were present 3 months afterwards in various tissues.

Using the serum of dogs naturally infested with various species of *Taenia*, he tried, by means of inoculations, to prevent the development of these cysts. Though he inoculated his serum both before and after the injection of hydatid sand, he produced no immunity. P.A.C.

155—Cornell Veterinarian.

- a. CRANE, D. B.—“Rotenone. A new parasiticide.” XXIII (1), 15-31. [1933.]

(a) Crane finds that “Rotenone” is effective against *Ancylostoma caninum*, *Toxascaris limbata* and *Belascaris marginata* in dogs but of little use against tapeworms.

The dose recommended for general use in dogs against nematodes is 1/20 gm. per kilo of body weight but it is not toxic in doses of 1/5 gm. per kilo. It is more effective when given after 18-24 hours' starvation. Observations were also made on parasitic diseases of non-helminthic origin. P.A.C.

156—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL.—“Zur Kenntnis des Entwicklungskreises des Hühnerbandwurmes *Raillietina cesticillus*.” XLI (30), 465-467. [1933.]
- b. ALBRECHT.—“Neuere Forschungen und Beobachtungen über die Askariasis bei Pferden.” XLI (34), 535-537. [1933.]

(a) Wetzel has elucidated the life-cycle of *Raillietina* (*Skrjabinia*) *cesticillus*, adult in fowls, in Germany.

Of the intermediate hosts incriminated by Cram and Jones in U.S.A. (1928-1932) only *Aphodius granarius* is indigenous to Europe. Wetzel has found that, in Germany, the Carabid beetles *Calathrus erratus* Sahlb., *C. ambiguus* Payk. and *C. fuscipes* Goeze, all act experimentally as intermediaries, and in a footnote he adds the following: *Amara familiaris*, *A. aenea*, *Pterostichus vulgaris*, *Bradycellus collaris* and *Harpalus tardus*. The experimental feeding of infected beetles to incubator-reared, 4-weeks-old chicks resulted in the passing of gravid segments after 20 days.

In describing the cysticeroid he likens it to a fully invaginated gastrula, the scolex lying within the gastrulation cavity, i.e., surrounded by a double sheath. This larva is illustrated in longitudinal section. B.G.P.

(b) Albrecht has here brought together the results of recently published work bearing upon ascariasis in horses. He deals first with larval migration, shown by Fülleborn to be obligatory for the horse ascaris, touches briefly upon egg-counting techniques, intestinal perforation by ascaris, eosinophilia, and anaphylaxis in man (to those working on ascaris he recommends the use of a gas mask), and concludes with some remarks on ascaricides.

B.G.P.

157—East African Medical Journal.

- a. CARMAN, J. A.—“Carbon tetrachloride in the treatment of hookworm disease and taeniasis.” X (6), 181-186. [1933.]

(a) Carman considers that, as carbon tetrachloride has been tested as an anthelmintic for a period of 12 years and is now included in the British Pharmacopoeia (1932), it can be regarded as a safe and valuable drug in ancylostomiasis and taeniasis, particularly if magnesium sulphate is given before and after the anthelmintic. The author has found it far more effective than *Filix Mas* extract against *Taenia saginata* in Kenya natives. B.G.P.

158—Empire Journal of Experimental Agriculture.

- a. FRASER, A. H. H. & ROBERTSON, D.—“The influence of the nutritional state of the sheep on its susceptibility to infestation with the stomach worm, *Haemonchus contortus*.” I (1), 17-21. [1933.]

(a) An experiment was carried out by Fraser and Robertson to determine the degree to which differences in clinical condition produced by nutritional

factors might affect the degree of parasitic infestation of sheep exposed to an equal chance of infection. The authors conclude that the results show that well fed lambs have a higher degree of resistance to infection than the poorly fed.

Thirty-two lambs 3 months old which had been hand reared in concrete floored pens from birth were divided into two groups comparable in weight and appearance and were grazed on naturally infected pasture previously heavily grazed by sheep. The two groups were kept separately but the 16 paddocks used were grazed in turn by each group for the same length of time. Each of the "ill fed" group had daily received 7 to 8 lbs. of green tares and bruised oats. Each of the "well fed" group had received in addition 3 pints of separated milk and 1 lb. of mixed meals daily. The average number of *Haemonchus* worms picked up by the "well fed" group was 31 and by the poorly fed group 103. There were, however, "surprising" individual variations within each group. The numbers actually ranging from 0 to 222 in the poorly fed group and from 2 to 76 in the well fed group. The average weight of the poorly fed group was 60 lbs., of the well fed group 84 lbs.

R.T.L.

159—Entomologist's Monthly Magazine.

- a. AUSTIN, M. D.—"The insect and allied fauna of cultivated mushrooms." LXIX, pp. 132-134. [1933.]

(a) Austin records the occurrence, amongst the insect and allied fauna found in cultivated mushrooms, of the nematode *Rhabditis teres* Schneider, which was found just below the epidermis of the cap. It was not possible to determine accurately the economic status of the worm, its presence possibly being secondary in nature.

J.N.O.

160—Farming in South Africa.

- a. ORTLEPP, R. J.—"Cattle and pig measles, and gid in sheep." Reprint No. 14, 2 pp. [1933.]
b. ORTLEPP, R. J.—"Control and eradication of worms in sheep." Reprint No. 33, 2 pp. [1933.]

(a) In this popular article Ortlepp sets out, for the information of the farmer, the chief factors regarding the mode of spread of the larval stages of cyclophyllid tapeworms which occur in cattle, pig and sheep. As there is no satisfactory method of dealing with already infested animals prevention measures should be directed to the elimination of the adult tapeworms from the sheep-dogs and for this *arecoline hydrobromide* is recommended, the dose varying from 1/16 gr. to 1/2 gr. according to the size of the dog.

R.T.L.

(b) Ortlepp usefully summarises the causes of failure to eliminate helminth disease of sheep in South Africa. These are (a) failure to identify correctly the species involved, (b) application of wrong treatment, (c) failure to dose all sheep regularly, (d) postponement of treatment until the sheep are very weak, and (e) overstocking. In South Africa the conditions favourable to larval development are absent during the winter months. The

excessive dryness and cold of winter suffice to kill the larvae of nodular worms hence it is especially desirable that all sheep should be cleaned as far as possible prior to the early rains of spring. Only those that are scouring need be treated and for these the enema is still the most effective cure. *Haemonchus* larvae are far more resistant to drought and cold than those of other worms but here medication is more efficacious. R.T.L.

161—Gardeners' Chronicle.

- a. HASTINGS, R. J.—“Treatment of narcissus bulbs with hot water.” XCIV (2443), 313-314. [1933.]

(a) Hastings records observations, which differ from those made by Staniland, on the length of time required to kill nematodes by the hot water treatment [see Helm. Abs. II, No. 1706].

Tests with dry dormant nematodes (infective larva stage) and similar material reactivated by the addition of water, showed that a period of immersion of not less than 3 hours was necessary to produce lethal results. The addition of 1 per cent. to 2 per cent. formalin to the water was found to kill all the nematodes escaped from the bulbs in 10 minutes. It is suggested that the disparity in the results of different observers may be due to the variable resistance of different strains of the nematode. M.J.T.

162—Geneeskundig Tijdschrift voor Nederlandsch-Indië.

- a. LANGEN, C. D. de.—“De oorzaak der anaemie bij Ankylostomiasis.” LXXIII (10), 592-617. [1933.]
 b. ELSBACH, L.—“Klinische onderzoekingen over filariasis.” LXXIII (11), 647-658. [1933.]
 c. PRUIS, G. W. A.—“Over ascarisintoxicatie.” LXXIII (11), 685-690. [1933.]

(a) De Langen here develops in detail a theory of the aetiology of hookworm anaemia presented in outline in a paper read before the Royal Society of Medicine [see Helm. Abs. II, No. 186a]. B.G.P.

(b) Elsbach seeks to show that the pathological changes caused by *Filaria bancrofti* are primarily due to damage to the endothelial cells of lymph vessels and glands.

From an examination of clinical cases he concludes that no secondary infection with bacteria is necessary in the aetiology of elephantiasis which, in its incipient stages at least, must be ascribed to *F. bancrofti*. Similarly, acute filariasis (lymphangitis) can be explained as dysfunction of the lymphatic system through the action of adult filaria toxins on the lymph-endothelial cells. The author also suggests that a resistance to the effects of filaria toxins is developed in persons who have frequently suffered from malaria, which disease is known to affect the reticulo-endothelial system (and perhaps also the lymphatic-endothelial system) by increasing the large mononuclear cells. B.G.P.

(c) Pruis briefly recounts the recent work of Fülleborn, Sakaguchi and Read on the toxicity to guinea-pigs of Ringer's solution in which ascaris had been washed, showing that an inflammatory reaction occurred in the lungs. He then discusses the clinical history of two children infested with

ascaris, both of whom displayed febrile symptoms until the worms were removed. No lung symptoms appeared but the author tentatively ascribes the illness to ascaris intoxication, particularly as few worms were present, and he raises the question as to whether living or dead worms produce the toxic substance.

B.G.P.

163—Imperial Bureau of Agricultural Parasitology. Notes and Memoranda.

- a. TRIFFITT, M. J.—“Helminthology in its application to agriculture and horticulture.” No. 8, 6 pp. [1933.]
- b. OLDHAM, J. N.—“Helminths in the biological control of insect pests.” No. 9, 6 pp. [1933.]

(a) Triffitt has briefly considered the more important species of plant parasitic genera, *Pathoaphelenchus*, *Anguillulina*, and *Heterodera*, from the point of view of their degree of specialization as parasitic organisms, their distribution and general economic importance.

The life cycles of several of the species, and their pathological effects upon the hosts are described. Recent work on the bionomics of the nematodes, more especially work dealing with the problem of the formation of biological strains both from the purely zoological aspect of nomenclature and from the economic point of view, is discussed. Such methods of control of nematode diseases as are of proved value are described and some account is given of the lines on which control measures for other of the more important diseases are being sought. Finally, the methods by which infections are spread from one country to another, and the various preventive measures which have been adopted by different countries to guard against the introduction of eelworm diseases are briefly outlined.

M.J.T.

(b) Oldham states that biological control is now one of the recognized modern methods of reducing damage done by insect pests. Such control is effected by organisms of various kinds (e.g., parasitic insects, helminths and protozoa) and it is realised that not only is it effective, but it presents fewer difficulties and is in the long run less costly than the use of insecticides or of special cultural methods.

Although parasitism of insects by worms, especially nematodes, has been known for several years, the inter-relationship of insects and helminths has only recently been considered as a factor in control where the incidence of worm parasitism has been high in certain insect species. Parasitism is recorded in almost every insect order, especially in the Lepidoptera, Coleoptera, Diptera and Orthoptera, which contain numbers of serious pests. Primary parasitism usually results in the inhibition of normal development or in reducing fecundity or in the death of the host. In many instances complete sterility has been recorded. The importance of helminths in the biological control of pests, alone or supplementing the work of parasitic insects, cannot be over-estimated and a field for study of great wealth has thus become available to economic helminthologists and entomologists.

J.N.O.

164—Indian Journal of Veterinary Science and Animal Husbandry.

- a. RAO, M. A. N.—“A preliminary report on the successful infection with nasal schistosomiasis in experimental calves.” III (2), 160-162. [1933.]
- b. BHALERAO, G. D.—“On a few nematodes parasitic in goats at Muktesar.” III (2), 163-165. [1933.]
- c. BHALERAO, G. D.—“On two unrecorded nematodes from the abomasum of cattle in India.” III (2), 166-173. [1933.]

(a) That *Cercariae indicæ* xxx Sewell 1921 which occurred in *Planorbis exustus* is the infective stage of the schistosome responsible for nasal granuloma has been demonstrated by Rao. R.T.L.

(b) *Gongylonema verrucosum* (Giles, 1892) is recorded as a parasite of the goat for the first time. *Oesophagostomum asperum* is noted as occurring in India in hill goats. From a female specimen Bhalariao described a new species of *Setaria*, viz., *S. buxi* from the same host. This species has tooth-like processes projecting into the lateral notches of the wall of the peribuccal ring. The dorso-ventral lip and the tail show peculiarities. R.T.L.

(c) For the first time *Haemonchus similis* Travassos, 1914, has been found in India. Bhalariao also describes a new species of *Capillaria*, viz., *C. bilobata* n.sp. from Indian cattle. R.T.L.

165—Indian Medical Gazette.

- a. MAPLESTONE, P. A.—“The frequency of hydatid disease in India.” LXVIII (7), 377-379. [1933.]
- b. RAO, S. S.—“Filarial worms under the human conjunctiva.” LXVIII (7), 394-395. [1933.]

(a) Hydatid disease is considered by most writers to be rare in man in India. Maplestone has found two dogs infected with *Taenia echinococcus* out of 100 pariahs killed in Calcutta. He cites indirect evidence for presuming that hydatid is commoner in India than indicated by recent medical records. R.T.L.

(b) Two cases of filarial worms in the conjunctiva in man have been reported from India. A third case is recorded but the worms were lost before they were identified. R.T.L.

166—Indian Veterinary Journal.

- a. MALKANI, P. G.—“Rapid method of evaginating the scolices in parasitic cysts.” IX (3), 193. [1933.]
- b. MALKANI, P. G.—“Discovery of the cause of nasal granuloma. Preliminary Report.” IX (3), 194. [1933.]
- c. DATTA, S. C. A.—“Histopathological studies on a case of helminthic granuloma of the equine skin.” IX (3), 195-196. [1933.]
- d. ACHARYA, S. K.—“Incidence of helminth parasites in pariah dogs.” IX (3), 210. [1933.]
- e. MALKANI, P. G.—“Discovery of the cause of nasal granuloma in cattle. Preliminary report.” IX (4), 257-277. [1933.]

(a) By keeping *Cysticercus bovis* and *C. tenuicollis* in solutions of sodium taurocholate very rapid evagination of the scolex occurred and aided the study of the hooks and suckers. R.T.L.

(b) Ayyar's actinomycotic theory of the cause of nasal granuloma in cattle is rendered untenable by the discovery of schistosome eggs in the

lesions. Malkani thinks that the species responsible is probably *S. spindalis*, Montgomery (1906). Treatment with tartar emetic is uniformly successful.

R.T.L.

(c) Habronema larvae, causing severe thrombo-angeitis, have been found by Datta in the first case noted in India of helminth granuloma of the skin in equines.

R.T.L.

(d) From 50 dogs obtained in Lucknow, Acharya has collected the helminth parasites. 49 dogs harboured *Ancylostoma caninum*, 7 *Spirocerca sanguinolenta*, 3 *Toxocara canis*, 11 *Dipylidium caninum*, 8 *Taenia serrata*, 7 *Taenia marginata* and 1 *Taenia coenurus*.

R.T.L.

(e) In this memoir Malkani gives a detailed account of the history of nasal granuloma in cattle, its distribution in the Province of Bihar and Orissa, the symptomatology, histopathology and parasitological findings.

The causal agent resembles *Schistosoma spindalis* but the eggs differ in location and in outline. The name *S. spindalis* var. *nasale* is suggested. Tartar emetic is not only curative but is also a valuable prophylactic agent. Microscopical examination of nasal discharge gives a satisfactory means of diagnosis.

R.T.L.

167—Journal of the American Medical Association.

- a. MAGATH, T. B.—“The relation of *Diphyllbothrium latum* infestation to the public health.” CI (5), 337-341. [1933.]

(a) The chief endemic focus of *Diphyllbothrium latum* in North America would appear to be located in the Central lakes. Magath thinks that the cases reported from the region of the Eastern lakes probably acquired their infection from fish shipped from the Central lakes to the local markets. That the bear is a reservoir host is not yet definitely proved. Attention is drawn to the over-emphasis given to the association of this tapeworm with anaemia. Only 0.01 per cent. of cases show anaemia of the primary type, and in literature only 550 cases are recorded. Of these 400 were Finlanders. Yet the infection is not more frequent in Finland than in certain parts of Sweden. Control measures should comprise treatment of all sewage effluents, thorough cooking or freezing of fish, notification and treatment of infected persons, stool examination of all Baltic immigrants and prevention of feeding raw fish to dogs. Further surveys of the extent of the infection of lakes and streams is advocated.

R.T.L.

168—Journal of the American Veterinary Medical Association.

- a. CHANDLER, W. L.—“Some observations on chlorin as a disinfectant.” LXXXII (1), 95-99. [1933.]
 b. THOMAS, E. F.—“A preliminary report on the study of poultry vermifuges.” LXXXIII (1), 61-75. [1933.]
 c. BLEECKER, W. L. & SMITH, R. M.—“Further studies on the relative efficiency of vermifuges for poultry.” LXXXIII (1), 76-81. [1933.]
 d. HAWN, M. C.—“The value of kamala as a tenicide for young turkeys.” LXXXIII (3), 400-404. [1933.]

(a) Chandler finds that chlorine exerts no action, within reasonable time limits, on helminth eggs. Chlorinated lime may be used for cleaning glassware as it will dissolve nematode eggs within 3 days.

P.A.C.

(b) From experiments involving the use of tetrachlorethylene, kamala and iodine vermicides for poultry, Thomas concludes that none of these shows any marked superiority over the other. Such treated hens rapidly became reinfested under natural conditions, and egg production was so affected by the treatment as to render it worthless. P.A.C.

(c) Bleeker and Smith compared the efficiency of three chicken vermifuges, nicotine sulphate + kamala, in the form of Black Leaf 40, iodine vermicide and pulvules No. 142 (Lilly) which are nicotine sulphate + Lloyd's reagent. Black Leaf 40 is highly efficient and very cheap. The other two are slightly less efficient but are to be recommended where the flock contains depressed and unthrifty birds. P.A.C.

(d) Hawn has experimental evidence that kamala is not an efficient taenicide for turkeys at any age and it produces a heavy mortality in young birds. P.A.C.

169—Journal of the Council for Scientific and Industrial Research, Australia.

- a. KAUZAL, G. & GRAHAM, N. P. H.—“A preliminary survey of the distribution of the hookworm of sheep in New South Wales.” VI (3), 189-190. [1933.]
- b. ROSS, I. C. & GRAHAM, N. P. H.—“Parasitological field trials with sheep. Results at ‘Frodsley,’ Tasmania, and ‘Meteor Downs,’ Queensland.” VI (3), 191-204. [1933.]

(a) From a preliminary survey Kauzal and Graham conclude that *Monodontus trionocephalus* is well established in sheep in Australia, in the Upper Hunter and Singleton Pastures Protection Districts but that practically all infections are on the eastern side of the Great Dividing Range. R.T.L.

(b) The results of further field trials on sheep fail to bear out the indications of trials reported by Ross and Graham for 1931 that sodium arsenate and copper sulphate administered in licks had lessened infestation with *Chabertia ovina* and *Oesophagostomum venulosum*. They confirmed the futility of adding medicinal supplements to licks and to drinking water for controlling parasitic infestations under Australian field conditions. R.T.L.

170—Journal of the Ministry of Agriculture.

- a. ROBERTS, E. J.—“Sheep sickness of permanent pasture.” XL (4), 337-343. [1933.]
- b. STANILAND, L. N.—“The treatment of narcissus bulbs with hot water.” XL (4), 343-355. [1933.]

(a) On temporary pastures in the fourth and fifth year, a liveweight increase of 46 and 39 per cent. was noted in sheep as compared with those on good permanent pasture nearby. This higher production is due to the greater stock carrying capacity of the temporary pasture. In autumn the lambs failed to thrive on the permanent pasture. Whether this was due to a change in the protein or mineral constituents of the pasture or to invasion with parasitic worms remains undetermined. R.T.L.

(b) Staniland gives a preliminary description of experiments designed to test the efficiency of the hot water treatment applied for short periods only to eelworm-infested bulbs.

The method of determining the minimum period necessary for heating through the bulbs in a water-bath at 110°F. is described, and the time taken to kill eelworms at this temperature was found to be 17 minutes. Experiments showed that periods much shorter than the standard 3-hour treatment were sufficient to rid the bulbs of eelworm, mites and fly, while in many varieties flower damage following the treatment was negligible, although leaf damage was not reduced.

M.J.T.

171—Journal of Parasitology.

- a. WARD, H. B.—“On *Thalassonema ophiocarinis*, a nematode parasitic in the brittle star *Ophiocoma amatum*.” XIX (4), 262-268. [1933.]
- b. ZAWADOWSKY, M. M. & ZVJAGUINTZEV, S. N.—“The seasonal fluctuation in the number of eggs of *Nematodirus* sp. in feces.” XIX (4), 269-279. [1933.]
- c. HSÜ, H. F.—“Some species of *Porrocaecum* (Nematoda) from birds in China.” XIX (4), 280-285. [1933.]
- d. PROMMAS, C. & DAENGSVANG, S.—“Preliminary report of a study on the life-cycle of *Gnathostoma spinigerum*.” XIX (4), 287-292. [1933.]
- e. BEAUDETTE, F. R., BLACK, J. J. & HUDSON, C. B.—“Distribution of *Tetrameres americana* in New Jersey.” XIX (4), 302-303. [1933.]
- f. HUNTER, G. W., III. & BANGHAM, R. V.—“Studies on the fish parasites of Lake Erie. II. New Cestoda and Nematoda.” XIX (4), 304-311. [1933.]

(a) Ward describes *Thalassonema ophiocarinis* gen. et sp. nov., from *Ophiocoma amatum* on the South African coast. The worms, which were found in only four specimens of star fish, were all larval forms, in which, however, the sexual organs could be distinguished. The author believes that the mature adults will be found in fish. He also reviews the parasites of echinoderms, which include Protozoa, Myzostomidae, molluscs, crustaceans, turbellarians (which form the major group of echinoderm parasites), annelids, as well as a few trematodes, cestodes, and nematodes. T.W.M.C.

(b) Zawadowsky and Zvjaguintzev studied the prevalence of eggs of *Nematodirus* sp. in a Llama, living in the open Zoological Gardens at Moscow for nearly two years. The maximum number of eggs was found in late summer, the minimum in early spring. The eggs passed in winter, while they do not develop, are not destroyed by the cold and accordingly in May and June larvae from autumn, winter and spring eggs are available for infection. The authors believe that the adults live only for a few months.

T.W.M.C.

(c) Hsü describes two new species of *Porrocaecum* from China: *P. chemi* from *Planesticus mandarinus* (with an oblong ventriculus, rudimentary intestinal caecum and a pentagonally reticulated egg shell, closely related to *P. ensicaudatum*) and *P. wui* from *Corvus macrorhynchos intermedius*, *Pica caudata* and *Urocissa sinensis* (with an oval ventriculus, short caecum and a corrugated egg-shell—closely related to *P. semiteres* and *P. ensicaudatum*). He also adds some details to the existing description of *P. reticulatum* from the night heron.

T.W.M.C.

(d) Prommas and Daengsvang find that cats and dogs act as normal hosts of *Gnathostoma spinigerum* in Siam.

The eggs hatch in 10 to 20 days at room temperature and the larvae die in 48 to 72 hours without further development in water, but if they are swallowed by Cyclops they migrate into the body cavity and undergo metamorphosis (including the development of cephalic bulb and spines).

T.W.M.C.

(e) Beaudette, Black and Hudson record natural infection of turkeys and quail with *Tetrameres americana* in New Jersey.

T.W.M.C.

(f) Hunter III and Bangham describe the following new parasites from fish in Lake Erie: *Proteocephalus stizostethi* from *Stizostedion* spp. and *Micropterus dolomieu*, which resembles *P. perplexus* in having "L"-shaped vitellaria but differs from it in numerous details; *P. wickliffi* from *Leucichthys artedi* which is related to *P. exiguus* but has no fifth sucker; and *Cystidicola lepisostei* from *Lepisosteus osseus*.

T.W.M.C.

172—Journal of the Washington Academy of Sciences.

- a. DRECHSLER, C.—"Morphological diversity among fungi capturing and destroying nematodes." XXIII (3), 138-141. [1933.]
- b. DRECHSLER, C.—"Morphological features of some more fungi that capture and kill nematodes." XXIII (5), 267-270. [1933.]

(a) Drechsler describes and figures the morphology and mode of attack of various fungi which capture and destroy nematodes of the genera *Rhabditis* and *Diplogaster*.

Arthrobotrys oligospora Fres. and *Harporporium anguillulae* Lotde, were frequently found destroying nematodes. The morphology and methods of capture of nine other species of fungi are described. The method of capture in the case of some of the fungi was by means of anastomosing hyphal loops, coated on their inner surface by an adhesive substance, which encircle the nematode. Processes from the loop penetrate the integument of the worm, inflate therein and thus destroy the organs. Capture by other fungi is effected by adhesive substances only. Other methods of capturing and killing are variations of the hyphal loop and adhesion methods. Seven of the fungi have been isolated in pure culture.

J.J.C.B.

(b) Drechsler describes and figures four additional fungi found capturing and killing free-living nematodes such as *Diploscapter coronatus* Cobb, *Cephalobus perniquis* de Man, and other forms belonging to the genera *Rhabditis*, *Diplogaster* and *Bunonema*.

J.J.C.B.

173—Kleintier und Pelztier. Illustrierte Rundschau.

- a. SCHMIDT, F.—"Parasitäre Stallkrankheiten der Kaninchen und ihre Bekämpfung." IX (7), 126-127. [1933.]

(a) Schmidt briefly discusses the principal helminthic parasites of rabbits, intestinal nematodes, lungworms, liver-fluke and cysticerci, the life-history of each, and suitable methods of control. Coccidiosis is also mentioned.

B.G.P.

174—Lancet.

- a. LANE, C.—“Mechanical basis of periodicity in *Wuchereria bancrofti* infection.” CCXXV (5738), 399-404. [1933.]
- b. KHALIL, M.—“The life history of the human trematode parasite *Heterophyes heterophyes* in Egypt.” CCXXV (5740), 537. [1933.]

(a) Lane sets out his grounds for believing that filarial periodicity is due to simultaneous parturition cycles and to the daily death of microfilariae. It is suggested that the key to the lag of some twelve hours between the time of parturition and that of microfilarial swarming in the blood is to be found in the changes which take place in the lymphatics in filariasis.

R.T.L.

(b) The marine and brackish water mollusc *Pirenella conica* which is widespread in the lakes on the Egyptian seaboard of the Mediterranean is, according to Khalil, the first intermediate host of *Heterophyes heterophyes*, the cercaria of which encysts in the mullet, *Mugil cephalus*. At Mataria on lake Manzala 53 out of 60 school children were found to be infected with this fluke.

R.T.L.

175—Medical Journal of Australia.

- a. VATTUONE, A. B.—“A new intradermal reaction in ankylostomiasis.” I (20th year) (21), 645-647. [1933.]

(a) Vattuone describes a new intradermal test to be used in cases of ancylostomiasis, based on the principle that if only a small drop of antigen is injected hypodermically, the reaction between antibodies and antigen will be limited and will remain localised.

Injection of the antigen is followed by the formation of a clear blister, surrounded by a hyperaemic zone, 2 cm. in diameter, with an irregular dusky margin. The control blister, resulting from the introduction of physiological saline was pale and small, the total diameter of the ring being about 1.2 cm. Patients suffering severely from the disease gave an intense reaction as compared with the carriers, though the latter also gave a decided reaction. The important fact is that patients so lightly infected as to give negative results from faeces examination, give a positive reaction to this test. Some general observations are added on the phenomenon of anaphylaxis.

P.A.C.

176—Memorias do Instituto Oswaldo Cruz.

- a. TRAVASSOS, L.—“Sobre os filarideos dos crocodillos sul-americanos.” XXVII (2), 159-164. [1933.]

(a) *Filaria bacillaris* Molin, 1858 which occurs in the thoracic wall of *Caiman sclerops* is made the type of a new genus *Oswaldofilaria*. From the same host Travassos records also *Micropleura vazi* n.sp.

R.T.L.

177—Münchener Tierärztliche Wochenschrift.

- a. STETTER, R.—“‘Nemural,’ ein neues Bandwurmmittel für Hunde und Katzen.” LXXXIV (33), 385-389. [1933.]

(a) Stetter has tested “Nemural,” a pyridin derivative containing arsenic and similar in its effects to arecolin, against tapeworms in dogs and cats. The tablets are dissolved in water and can be given a few hours after a light meal. The drug needs no laxative, is not toxic, and is effective within 5 hours. Of 70 dogs and 6 cats, 97 per cent. passed tapeworms, mostly *Dipylidium caninum*. B.G.P.

178—Nederlandsch-Indische Bladen voor Diergeneeskunde en Dierenteelt.

- a. MEIJER, W. C. P.—“*Cysticercus cellulosae* bij den hond.” XLV (3), 135-137. [1933.]
- b. MEIJER, W. C. P.—“Extracten uit de maand- en jaarverslagen der gouvernements en provinciale veeartsen. No. 62, I. Cysticercosis. & II. Trichinosis.” XLV (3), 165-175. [1933.]

(a) Meijer gives records of *Cysticercus cellulosae* in slaughtered dogs. Dogs are frequently slaughtered for consumption in the Tapanoei province of Java. The parasite was found in 5 of 2,199 dogs slaughtered in 11 months and in 20 of 1,632 pigs in the same period. In dogs the parasites are situated most frequently in the heart muscle, also in other muscles and in the liver and the brain. In one case, only the liver was infested and in another, only the brain. H.M.

(b) Meijer presents an earlier report on the subject of Cysticercosis [see previous abstract] and a statistical report for 1932, and remarks on trichinosis in pigs, dogs, rats and man.

Of 11,398 adult pigs slaughtered 4,399 were examined and 108 found positive. The percentage of positives is markedly higher in sows than in boars and castrates on account of the fact that sows are slaughtered at a later age than the others. This soon became generally known and sows were slaughtered at abattoirs where no inspection for trichinae is carried out, thus frustrating the purpose of inspection.

Of 2,413 dogs inspected 37 were infected. In order to combat this infection refuse, especially from bazaars, which contains meat should be properly destroyed. Of 721 rats examined none were infected. The rat is not considered to be an important carrier of the infection. No human cases were reported in 1932. This is ascribed to the fact, that practically no raw meat is eaten by the population. *Taenia solium* is frequent, however, and sufficient opportunity therefore exists for the ingestion of an occasional cysticercus, but a large number of trichinae are required to produce disease. The author advocates further inspection for trichinae, but infected carcasses should not be destroyed; a method of treatment for such carcasses should be found and this would benefit the campaign against the parasite. H.M.

179—Nuovo Ercolani.

- a. LEINATI, L.—“Le lesioni aortiche da *Spiroptera sanguinolenta* (Rud.) nel cane.” XXXVIII (1), 1-13, (2) 33-39 & (3), 50-60. [1933.]

(a) On a detailed study of 10 cases, Leinati has based an account of aortic lesions in dogs due to *Spirocerca sanguinolenta*.

Macroscopically the lesions may consist of nodules in which the worm is (or has been) embedded. Occasionally aneurysms develop, or the aorta may even rupture. Microscopically the nodule is seen to be due to inflammatory processes in the adventitia, extending into the media, and accompanied by hypertrophy of the intima. The adventitial wall of a nodule may be so elastic as to lead to evagination at that point with the consequent formation of an aneurysm.

B.G.P.

180—Onderstepoort Journal of Veterinary Science and Animal Industry.

- a. MÖNNIG, H. O. & MARAIS, I. P.—“The administration of anthelmintics to horses in bran.” 1 (1), 59-61. [1933.]
- b. MÖNNIG, H. O.—“The cause of nodular enteritis in cattle.” 1 (1), 63-65. [1933.]
- c. MÖNNIG, H. O.—“The chemotherapy of oesophagostomiasis in sheep.” 1 (1), 67-76. [1933.]
- d. MÖNNIG, H. O.—“Wild antelopes as carriers of nematode parasites of domestic ruminants. Part III.” 1 (1), 77-92. [1933.]
- e. ORTLEPP, R. J.—“*Ozolaimus megatyphlon* (Rud., 1819) a little known helminth from *Iguana tuberculata*.” 1 (1), 93-96. [1933.]
- f. ORTLEPP, R. J.—“*Joyeuxia fuhrmanni* Baer, 1924, a hitherto unrecorded cestode parasite of the domesticated cat in South Africa.” 1 (1), 97-98. [1933.]
- g. ORTLEPP, R. J.—“On some South African reptilian oxyurids.” 1 (1), 99-114. [1933.]

(a) The method of administering the anthelmintics, carbon bisulphide, carbon tetrachloride and oil of chenopodium in bran to horses described as highly effective by Roger, Jouveaux & Plateau, in 1928, has been found by Mönnig and Marais to be quite ineffective against strongyles and ascarids. The administration of carbon bisulphide by stomach tube was completely effective against ascaris and fairly effective against strongyles.

R.T.L.

(b) The larvae which Bontz & Krause in 1930 described in nodules in bovine intestines and believed to be those of *Bunostomum* have been studied by Mönnig who submits conclusive evidence that they belong to the genus *Oesophagostomum* and probably to the species *O. radiatum*. Their microscopical appearances are compared with those of the larvae of *O. columbianum* from nodules in sheep.

R.T.L.

(c) Preliminary tests indicate that the problem of treating oesophagostomiasis in sheep can only be solved when a method is evolved for dosing directly into the abomasum. The best results followed when relatively insoluble drugs were used as these reach the colon unchanged. Arsenious sulphide and sodium fluosilicate proved the most promising of 72 different drugs used experimentally.

R.T.L.

(d) Continuing his earlier investigations [see Helm. Abs. I, No. 403a]. Mönnig reports that lambs were experimentally infected from the Impala

with *Trichostrongylus falculatus*, *T. instabilis* and *Cooperia hungi*; with *Haemonchus vegliai* and several species of *Cooperia* from the Koodoo; with *Haemonchus bedfordi* from the blue wildebeest; and with *Bigalkea albi-frontis* and *Cooperia serrata* from the springbuck. The other helminths found in these hosts are listed. R.T.L.

(e) A redescription of the little known oxyurid *Ozolaimus megatyphlon* is given by Ortlepp who considers it desirable to form a new subfamily Ozolaiminae for its reception owing to its two large lateral lips and the peculiar structure of the oesophagus. R.T.L.

(f) Ortlepp considers that *Joyeuxia fuhrmanni* is distinct from *J. pasqualei* (Diam.) as in the former the testes extend in a zone anterior to the vasa deferentia which are removed from the anterior margins of the segments. In South Africa the natural hosts of *J. fuhrmanni* are *Zibethailurus serval* and *Felis caffra*. Experiments on the life history proved negative. R.T.L.

(g) Six new species of oxyurids are described from South African reptiles. One of these *T. macrospiculum* is type of a new genus, *Thaparia*, which has a unique position from the nature of the oesophagus, the position of the vulva, the structure of the female genitalia and the extraordinary size of the spicule. R.T.L.

181—Orvosi Hetilap.

- a. LÖRINCZ, F.—“A macska szerepéről az echinococcosis terjesztésében.” LXXVII (25), 532-536. [1933.]

(a) Lörincz notes that cats are commonly supposed to be important reservoir hosts of *Echinococcus granulosus*, and goes on to show, from his experimental feeding of hydatid to 11 dogs and 51 cats, that development in the cat is very slow, the young tapeworms frequently degenerating and in any case not reaching sexual maturity. Of 31 experimentally infected cats which were carefully observed, 14 spontaneously threw off the infection. On the other hand all the dog infections were positive, sexual maturity of the worms being reached in 36 days. This raises, but does not solve, the question as to whether *Echinococcus oligarthrus* in cats may not after all be a valid species. B.G.P.

182—Parasitology.

- a. KEILIN, D. & ROBINSON, V. C.—“On the morphology and life history of *Aproctonema entomophagum* Keilin, a nematode parasite in the larvae of *Sciara pullula* Winn. (Diptera-Nematocera).” xxv (3), 285-295. [1933.]
- b. OTTER, G. W.—“On the biology and life history of *Rhabditis pellio* (Nematoda).” xxv (3), 296-307. [1933.]
- c. BAYLIS, H. A.—“A new species of the nematode genus *Uncinaria* from a sealion with some observations on related species.” xxv (3), 308-316. [1933.]
- d. BROWN, F. J.—“On the excretory system and life history of *Lecithodendrium chilostomum* (Mehl.) and other bat trematodes, with a note on the life history of *Dicrocoelium dendriticum* (Rudolphi).” xxv (3), 317-328. [1933.]
- e. JONES, E. I.—“Studies on the Monogenea (Trematoda) of Plymouth. I. *Microbothrium caniculae* (Johnstone 1911).” xxv (3), 329-332. [1933.]
- f. MOGHE, M. A.—“Four new species of avian cestodes from India.” xxv (3), 333-341. [1933.]

(a) Keilin and Robinson give an account of the anatomy, illustrated by numerous drawings, biology, and systematic position of *Aproctonema entomophagum* Keilin, 1917, a nematode found parasitic within larvae of a Mycetophilid fly, *Sciara pullula* Winn., inhabiting decaying wood.

Both sexes of the worm are parasitic within the fly larva, which is the principal host stage, although the nematodes may be carried over through the pupal to the imaginal stage when parasitism occurs late in the larval life. The parasite escapes from the insect larva by actively tearing through its cuticle and from the fly by rupture of the intersegmental chitin of the abdomen during its oviposition movements. The free-living stage of the nematode is very short. The effect of parasitism is to delay metamorphosis of the fly, and at least two generations of the nematode may be found in one host; only female flies were found parasitized.

In discussing the systematic position of this form the authors regard *Aproctonema*, *Tetradonema* (a near relative), and *Mermis* as three genera of the family Mermithidae and propose to dispense with the family Tetradenematidae Cobb. J.N.O.

(b) Otter gives the probable course of the life history of *Rhabditis pellio*, based on experimental evidence and on the findings of earlier investigators, and records his researches into the biology of this earthworm-inhabiting nematode.

Eight culture media were tried with variable success, the most satisfactory method of culturing the nematodes being in hanging drops in a medium free from excess of putrefying bacteria. A medium, poor in food, prolonged life and in it males (*F* generation) lived one-third as long as females; a rich medium, by accelerating the life processes, caused death more quickly. The chief food of the nematode is considered to be bacteria and partial starvation probably prevents larvae from becoming mature while within the living earthworm.

In the natural state 150 to 300 eggs are probably laid by each female. A high temperature together with suitable environmental conditions are favourable to viviparity. The nematode behaved in Otter's investigations entirely as a bisexual species, a few cases of copulation being observed, and it is considered a species in which hermaphroditism, the degree of which possibly bears some relation to the sex ratio, is just commencing. The sex ratio in both *F* and *F*₁ generations is 1 male to 2 females.

Four British earthworm species were examined and one, *Eisenia foetida*, was found rarely infected. The head (segment I to the beginning of the clitellum) was the most heavily infected region. A few larvae of a *Porrocaecum* sp. were found in 3 species of the earthworms examined. J.N.O.

(c) Baylis describes a new species of *Uncinaria* from a sea-lion pup (*Otaria byronia*) from the Falkland Islands. The worms are suspected of being the cause of death. *Uncinaria hamiltoni* has a buccal capsule similar to that of *U. stenocephala*, with well developed sub-ventral teeth and an annular thickening of the base of the capsule wall. The male is 8.5 to 12 mm. and the female 12.5 to 17.5 mm. long. The author saw what is probably the same species in sea-lions from California. He agrees that a

single species is found in dogs, foxes and badgers (*U. stenocephala*) while regarding *U. lotoris* from raccoons and *U. longespiculum* from civets as distinct. T.W.M.C.

(d) Brown notes that during October and November (in Great Britain) larvae of *Phryganea grandis* contain unencysted metacercariae of *Lecithodendrium*. These grow slowly during winter and large metacercariae are found in the following March, April or early May. These encyst during the pupal and imaginal stages of the insect. The excretory system is of the 2 (6 + 2) type. He believes that a second intermediate host is necessary in the case of *Dicrocoelium dendriticum*. T.W.M.C.

(e) Jones describes in detail the anatomy of *Microbothrium caniculae* as it occurs on the dorsal fins of *Scyllium canicula*. T.W.M.C.

(f) Moghe describes four new species of cestodes from birds at Nagpur, C.P., India: *Baeria orbiuterina* gen. et sp. nov. from *Turdoides somervillei* (this is closely related to *Paranoplocephala* but the uterus is a globular sac with a parauterine organ): *Ophryocotyloides meggitti* from *Corvus splendens*: *Hymenolepis oweni* from *Philomachus pugnax*: and *Uncinaria acapillicirrosa* from *Anas platyrhynchos* (*domestica*). He also records, from *Turtur cam-bayensis*, *Cotugnia fuhrmanni* and *H. serrata*. T.W.M.C.

183—Phytopathology.

- a. STEINER, G. & BUHRER, E. M.—“Phytopathological notes. Three new hosts for *Tylenchus dipsaci*, the bulb or stem nema.” XXIII (7), 620. [1933.]
- b. STEINER, G. & BUHRER, E. M.—“Phytopathological notes. Unusual disease symptoms produced by *Aphelenchoides fragariae*.” XXIII (7), 622. [1933.]

(a) Steiner and Buhner found *Tylenchus dipsaci* infesting bulbs of *Colchicum speciosum album* and *Chionodoxa luciliae* imported into the United States of America from Holland. A third new host, *Digitalis purpurea* is also recorded.

The symptoms produced in bulbs of *Colchicum speciosum album* resembled those caused by this parasite in bulbous irises, while in *Chionodoxa luciliae* brown rings were produced analogous to those commonly found in narcissus attacked by *T. dipsaci*. In *Digitalis purpurea* the nematode was found in spots in the leaves of a dry herbarium specimen. M.J.T.

(b) Steiner and Buhner record the occurrence of symptoms of the “cauliflower” type of disease in chrysanthemums infected with *Aphelenchoides fragariae*.

The usual symptoms shown by this host when infested by *A. fragariae* were absent. The authors attribute these abnormalities to the luxuriant sappy growth of the hosts. M.J.T.

184—Plant Disease Reporter.

- a. CHRISTIE, J. R. & ARNDT, C. H.—“Further notes on the nematodes associated with the soreshin of cotton.” XVII (1), 10-12. [1933.]
- b. BOSHER, J. E. & NEWTON, W.—“Host preference of the root-knot nematode.” XVII (2), 18-19. [1933.]

- c. STEINER, G. & BUHRER, E. M.—“Observations on nematode diseases of plants.” xvii (4), 33-34. [1933.]
- d. BOYD, O. C. & CHRISTIE, J. R.—“Further observations on the strawberry-dwarf nematode in Massachusetts.” xvii (6), 61. [1933.]
- e. ANON.—“Nematodes associated with soreshin of cotton in Arkansas.” xvii (6), 62. [1933.]
- f. BUHRER, E. M., COOPER, C. & STEINER, G.—“A list of plants attacked by the root knot nematode (*Heterodera marioni*).” xvii (7), 64-96. [1933.]
- g. BOSHER, J. E.—“An outdoors infestation of root knot nematode in British Columbia.” xvii (8), 105-106. [1933.]

(a) Christie and Arndt give the results of an investigation into the nematode populations of cotton seedlings suffering from the disease known as “soreshin,” and describe some experiments which demonstrate initial damage caused by nematodes.

Aphelenchoides parietinus and *Aphelenchus avenae* were present in a large percentage of the plants examined, and *Cephalobus* sp., *Tylenchus pratensis* and *Acrobeles bütschlii* also occurred in varying numbers. Small numbers of each of these nematodes were found in a few of the healthy plants examined. Experimental evidence was obtained that *Cephalobus oxyuroides*, *Aphelenchoides parietinus* and *Aphelenchus avenae* would occasionally penetrate healthy tissue. It is concluded that nematodes may frequently be the primary parasites responsible for the disease.

M.J.T.

(b) Bosher and Newton found that *Lobelia erinus* was heavily attacked by *Caconema radiculicola* of an unspecialized strain, while *Chrysanthemum frutescens*, another known host, grown in close association with the former in a window-box remained free from attack.

M.J.T.

(c) Steiner and Buhner found *Tylenchus dipsaci* in carrots from Sweden, a new country for this host. The nematode was also found for the first time in narcissus bulbs from New Hampshire. Three new hosts are recorded for *Caconema radiculicola*, viz., *Thalictrum tsukushinense*, *Sparmannia africana* and *Iris tingitana*. *Tylenchus dipsaci* was also present in *Iris tingitana*.

M.J.T.

(d) Boyd and Christie report the reoccurrence of *Aphelenchoides fragariae* associated with disease symptoms of strawberries near Falmouth, Massachusetts.

The symptoms though severe were not widespread, and showed a greater resemblance to those diseases known as “red-plant” and “cauliflower disease” than to “dwarf.” The nematode population of affected plants was found to be high.

M.J.T.

(e) A report of findings by Christie on nematodes infesting cotton seedlings is quoted.

The numbers of nematodes found in diseased seedlings varied considerably but *Aphelenchoides parietinus* was constantly present and *Aphelenchus avenae*, *Acrobeles bütschlii* and *Cephalobus elongatus* were found in most plants. This agrees with previous findings in South Carolina and in Turkestan. The precise rôle played by the nematodes remains unknown.

M.J.T.

(f) Buhner, Cooper and Steiner list 855 plant species which are susceptible to attack by *Heterodera marioni*.

The hosts are listed alphabetically under accepted scientific names, and synonyms and common names are also given. Species known to be affected in continental United States of America are specially marked. M.J.T.

(g) Bosher records an outdoor infection, apparently of some years duration, of *Heterodera marioni* in Vancouver Island. M.J.T.

185—Poultry Science.

- a. BLEECKER, W. L. & SMITH, R. M.—“Efficiency of treatments for internal parasites.” XII (1), 27-30. [1933.]

(a) The most effective poultry vermifuge studied by Bleeker and Smith was a mixture of Black Leaf 40 + Lloyd's alkaloid reagent + 15 grains of Kamala. This vermifuge was 78.5 per cent. effective. A second vermifuge consisting of 5 cc. turpentine + 5 cc. mineral oils and also several home-prepared remedies were all less effective. P.A.C.

186—Proceedings of the Royal Society of Medicine.

- a. LANGEN, C. D. de.—“Studies on blood diseases and blood regeneration in Java.” XXVI (6), 763-772. [1933.]

(a) In the course of a paper on blood diseases in Java, de Langen dealt with hookworm anaemia in man, in the light of his experiences.

The estimated blood-loss of 2-3 cc. per diem in hookworm cases is unlikely to cause anaemia since a healthy sheep can lose 100 cc. per diem for months without harm. The theory of a toxic haemolysis is discounted by the fact that haemolysis is reduced in cases of hookworm anaemia; the mean life of a red cell actually increases to 212 days, as calculated from measurements of haemoglobinaemia and haemoglobinuria. This increased life of the red cell involves a decrease in haematopoiesis and suggests a disturbance of the lecithin/cholesterine ratio in the cell in the direction of lecithin deficiency. Given a dietary deficiency of fats, then the relatively slight blood-loss, combined with reduction of effective absorbing surface in the intestine by necrosis, would be capable of producing in hookworm cases an anaemia fundamentally of the aplastic type. B.G.P.

187—Proceedings of the Zoological Society of London.

- a. REES, F. G.—“Studies on *Cittotaenia pectinata* (Goeze, 1782) from the common rabbit, *Oryctolagus cuniculus*. Part I. Anatomy and histology.” (2), 239-252. [1933.]
b. REES, F. G.—“Studies on *Cittotaenia pectinata* (Goeze, 1782) from the common rabbit, *Oryctolagus cuniculus*. Part II. Developmental changes in the egg, and attempts at direct infestation.” (2), 253-257. [1933.]

(a) Rees has redescribed in detail the morphology of the anoplocephalid cestode *Cittotaenia pectinata*.

The description is based on whole mounts and sections cut in all three dimensions of material from 64 rabbits (37 per cent. of those examined) in

the Aberystwyth district, and is compared with the descriptions of Stiles (1896) and Lyman (1902) based on European and American material respectively. The author concludes that the European form is a distinct variety and she proposes the name *Cittotaenia pectinata* var. *europaea* n.var. The paper is illustrated by 5 plates. B.G.P.

(b) In this second paper Rees has recorded the developmental changes in the egg of *Cittotaenia pectinata* from the rabbit and has unsuccessfully attempted to infect rabbits directly.

In development the principal change lies in the increasing length of the two horns on the pyriform apparatus; they become long and filamentous and finally attached to the inner shell membrane. The eggs withstand drying for at least 45 days but in water the pyriform apparatus swells up and finally bursts allowing the hexacanth embryo to escape. Experimental infection was attempted *per os* and by nasal injection, to test Sinitsin's theory of the nasal route for *Moniezia* in sheep. Infection failed to occur both directly in adult rabbits and prenatally in their offspring. B.G.P.

188—Profilassi.

a. PACIFICI, M.—“Broncopolmonite verminosa o strongilosi suina.” VI (2), 37-40. [1933.]

b. CREMONA, P. & MONACO, R.—“Sulla bronchite verminosa dei bufali.” VI (5), 141-142. [1933.]

(a) Pacifici discusses verminous broncho-pulmonitis in pigs due to *Metastrongylus* spp. He describes the lesions and concludes that the disease is not of great importance from the point of view of the meat industry, in spite of the high incidence, since the lung lesions are usually circumscribed. [It is clear that the author is unaware of the Hobmaiers' work on the life-history of *Metastrongylus*: his remarks on life-history are therefore misleading.] B.G.P.

(b) Cremona and Monaco have successfully used an intratracheal injection of 10 cc. of 2 per cent. picric acid in the treatment of verminous bronchitis, due to *Dictyocaulus viviparus*, in cattle. B.G.P.

189—Puerto Rico Journal of Public Health and Tropical Medicine.

a. ASHFORD, B. K. & SNYDER, H. M.—“Gentian violet in filariasis.” VIII (4), 375-384. [1933.]

(a) In some 50 cases of clinical filariasis and elephantiasis attending the outpatient clinic of the University Hospital of Porto Rico gentian violet gave most hopeful apparent results in prolonging the intervals between attacks and in seeming to cure in some instances, but acute exacerbations recurred even during the course of treatment in seven cases. Although gentian violet did not bring about a disappearance of the microfilariae, Ashford and Snyder believe that in most cases it reduced the numbers considerably and they suggest its further trial with larger doses. R.T.L.

190—Quarterly Journal of Microscopical Science.

- a. LYNCH, J. E.—“The miracidium of *Heronimus chelydrae* MacCullum.” LXXVI (1), 13-33. [1933.]

(a) The large miracidium of the monostome fluke *Heronimus chelydrae* is described in much detail. The so-called intestine is an apical gland and the so-called mouth is the aperture of a gland with two large oxyphilic cells. The germ ball aggregate is enclosed in a membranous cellular envelope or sac and is completely separated from the adjacent sub-epithelial layer.

R.T.L.

191—Records of the Indian Museum.

- a. MEGGITT, F. J.—“Cestodes obtained from animals dying in the Calcutta Zoological Gardens during 1931.” XXXV (2), 145-165. [1933.]

(a) In reporting on the cestodes collected from animals in the Calcutta Zoo, Meggitt describes the following new forms. *Raillietina* (*Paroniella*) *fulvia* n. sp., *Idiogenes furtiva* n. sp., *Dioicocestus fevita* n. sp., *Bancroftiella fona* n. sp., *Cyclorchida foteria* n. sp., *Dendrouterina fovea* n. sp., *Hymenolepis filta* n. sp., *H. fimula* n. sp., *H. finta* sp. inqu., *H. fista* n. sp., *H. fola* n. sp., *H. fona* n. sp., *H. foveata* n. sp., *Metroliaestes fulvida* n. sp., *Cladotaenia feuta* n. sp., and *C. fania* n. sp. Most of these are illustrated and numerous previously known forms are also listed.

B.G.P.

192—Revue Vétérinaire et Journal de Médecine Vétérinaire et de Zootechnie.

- a. DIZIER.—“Distomatose sur un veau de cinq semaines.” LXXXIV, p. 31. [1933.]

(a) Dizier records the finding of 4 adult flukes in the liver of a 5-weeks-old calf, a case obviously involving pre-natal infection. He regards this as evidence that flukes reach the liver *via* the blood stream.

B.G.P.

193—Rivista di Patologia Nervosa e Mentale.

- a. RIZZO, C.—“La diagnosi biologica di cisticercosi del nevrasso. A proposito di un quarto caso di cisticercosi cerebrale diagnosticato in vita.” XLI (1), 193-216. [1933.]

(a) This is a record of the fourth case of cerebral cysticercosis which Rizzo has diagnosed during life on the basis of finding an eosinophilia in the cerebro-spinal fluid. The recent literature bearing upon similar cases is reviewed, the author showing that eosinophilia is not always marked, especially during the early development of the parasites. In the present case the eosinophilia was only 10 per cent. in the first two lumbar punctures, but it rose later to 40 per cent. Cysticercosis can be distinguished diagnostically from hydatidosis of the neural axis since in the latter the cerebro-spinal fluid presents a normal picture.

B.G.P.

194—Schweizerische Medizinische Wochenschrift.

- a. BLOCH, A.—“Eine Wurm-Enquete.” LXIII (24), 594-597. [1933.]

(a) Bloch records that, of 277 stools from 25 children's homes in Switzerland, 22 per cent. contained eggs of one or more of the parasites trichuris, ascaris and oxyuris. The age-group 10-14 years showed the greatest percentage infection. Bircher adds a note to the effect that, of 1,031 stools collected by 160 Swiss doctors in private practice, 38 per cent. were positive for worm eggs. Helminthiasis is more common among Swiss children than has been realized.

B.G.P.

195—Science.

- a. CURTIS, M. R., DUNNING, W. F. & BULLOCK, F. D.—“Is malignancy due to process analogous to somatic mutation?” LXXVII (1989), 175-176. [1933.]
- b. INGLES, L. G.—“The specificity of frog flukes.” LXXVIII (2017), 168. [1933.]
- c. HORSFALL, M. W.—“Development of *Cercaria macrostoma* Faust into *Proterometra* (nov. gen.) *macrostoma*.” LXXVIII (2017), 175-176. [1933.]

(a) Malignant tumours, chiefly polymorphous cell sarcomata, develop in the wall of *Cysticercus fasciolaris* in the liver of the rat. Curtis, Dunning and Bullock have found that out of 26,172 experimentally infected pedigree rats of which 13,120 had survived the eight months' minimum period, 3,285 had sarcoma. Usually only one cyst and in some of the early tumours only a small area of the cyst wall showed malignant transformation. There was a significant negative correlation between the number of cysts and the duration of the infection. The duration of the irritation and not the actual age of the rats is the essential factor. The difference noticed in certain strains of rats are determined by relative longevity and susceptibility to *Cysticerci*. It may turn out that the initial cell change occurs by a process analogous to somatic mutation.

R.T.L.

(b) There is a strict host specificity in the flukes of the frog which Ingles suggests may be used to assist in the differentiation of certain species of molluscs concerning which differences of opinion exist. The introduced bull frog *Rana catesbeiana* at Gridley, California, which has lost its fluke parasites has greatly outnumbered the indigenous species.

R.T.L.

(c) *Proterometra macrostoma* is a small compressed Azygiid. It forms the type of a new genus which is distinguished from other Azygiidae by the extension of the uterine coils and vitellaria anteriorly to the cirrus pouch. The rediae and cercariae occur in *Goniobasis livescens* and in *Pleurocerca acuta*. They infect fish of the family Centrarchidae.

R.T.L.

196—Scottish Journal of Agriculture.

- a. ROBERTSON, D.—“Worm infestation of lambs.” XVI (3), 320-327. [1933.]

(a) Robertson in this paper impresses on the farmer the danger to lambs from parasitic worms and especially the lesser stomach worm *Ostertagia circumcincta* of which the symptoms, life history and control are described. As the larvae require 10 days to hatch it is theoretically possible to secure

worm-free lambs by placing in-lamb ewes on pastures which have never carried sheep and grazing the field in sections by a ten day shift. The results of such an experiment made at Craibstone in 1932 are recounted. R.T.L.

197—Semana Médica.

- a. NIÑO, F. L. & DEFAZIO, F.—“La cuestión de las apendicitis verminosas.” XL (14), 1166-1176. [1933.]

(a) Niño and Defazio describe a case of appendicitis apparently caused by *Oxyuris vermicularis* worms, which were found in the lumen and within the inflamed mucosa, and which are illustrated in microphotographs of sections of the organ at various levels. From a consideration of similar cases in the literature they recognize appendicitis verminosa as a pathological entity. B.G.P.

198—Southern Medical Journal.

- a. MOLLOY, D. M.—“The treatment of hookworm and other intestinal helminth infections with hexylresorcinol under field conditions in central America.” XXVI (7), 575-583. [1933.]

(a) From a comparative study of the results obtained from a single treatment of hexylresorcinol and of chenopodium and tetrachlorethylene, Molloy concludes that the drug is without an equal in the treatment of ascariis infections in man. It is also the most effective drug we have against whipworm except possibly the latex of the wild tropical fig. In hookworm cases a second treatment by another anthelmintic is recommended. Hexylresorcinol is best given in sugar-coated pills as it acts on gelatin capsules. In the discussion on this paper Faust reported that the drug given by the mouth together with a high enema of 1 in 1,000 is invaluable in eradicating long standing infections with *Oxyuris vermicularis*. R.T.L.

199—Taiwan Igakkai Zasshi.

- a. NISHI, M.—“Experimental observations on the blood-sucking activities of Ancylostomidae, especially *Ancylostoma caninum*.” XXXII (5), [English summary pp. 61-62.] [1933.]
- b. YOKOGAWA, S.—“Report on examinations with *Sparganum mansoni*, undertaken in an endeavour to clarify the nature of *Sparganum proliferum*.” XXXII (7) [Reprint in English 3 pp.] [1933.]
- c. WAKESHIMA, T.—“Experimental studies on the tropisms of the mature larvae of Ancylostomidae. I. Report: especially on the thigmotropism of *Ancylostoma caninum*.” XXXII (8), [English summary pp. 109-113.] [1933.]
- d. YOKOGAWA, S.—“Report on experiments with *Sparganum mansoni* undertaken in an endeavour to clarify the nature of *Sparganum proliferum*.” XXXII (8), [English summary pp. 114-116.] [1933.]

(a) From experimental observations *in vivo* of *Ancylostoma caninum* in a series of 21 dogs under total anaesthesia, Nishi has secured quantitative data on the worms' blood-sucking activities.

These involve, at the optimum temperature of 38°-40°C., mouth movements on the part of the worm at an average rate of 161 times per minute. The blood, which is retained in the worm's intestine for a period varying from 1 to 5 minutes, is ejected from the anus every 45 seconds. By counting the red

cells passing through the worm's intestine the author estimates the daily loss of blood per worm as 0.144 cc., in addition to which there is a loss from around the worm's mouth of about 0.2 cc. per day. Sections of dog's intestine show that the blood vessels around the point of attachment are congested. [These sections, and also the apparatus used in the *in vivo* observations, are illustrated by a plate facing p. 690, in the Japanese section of the *Zasshi*.] B.G.P.

(b) Yokogawa has attempted to induce by chemical and mechanical stimulation a proliferation in *Sparganum mansonii* which would explain the origin of the specimens recorded in literature as *Sparganum proliferum*. A certain amount of proliferation did occur in some experimental animals but appeared to be very different from that of the true *Sparganum proliferum*. The author still has doubts of the validity of this species. R.T.L.

(c) Wakeshima discusses anew the question of thigmotropism in hook-worm larvae and from a series of carefully devised experiments with *Ancylostoma caninum* larvae concludes that the infective larvae do exhibit manifest although weak thigmotropism. R.T.L.

(d) With plerocercoids of *Sparganum mansonii* transplanted from frogs or the Formosan musk-rat *Crocidura murina* into albino rabbits, mice, rats or cats which were subjected daily to pressure or other mechanical stimulation or to intravenous injections of grape sugar or calcium, Yokogawa endeavoured to induce proliferation in the plerocercoid. Although slight success followed in some cases the mode of proliferation differed from that seen in *Sparganum proliferum*. The identity or otherwise of *S. mansonii* and *S. proliferum* remains unsettled. R.T.L.

200—Tierärztliche Rundschau.

- a. SZIDAT, L.—“Über die Entwicklung und den Infektionsmodus von *Tracheophilus sisowi* Skrz., eines Luftröhrenschmarotzers der Enten aus der Trematodenfamilie der Zyklozöliden.” xxxix (6), 95-99. [1933.]
- b. FREUND, L.—“Parasiten des Meerschweinchens.” xxxix (26), 432. [1933.]
- c. METZ, H.—“Spulwurmbefall bei Haustieren und seine Bekämpfung.” xxxix (32), 535. [1933.]

(a) Szidat regards the life history of *Tracheophilus sisowi* as of a primitive type in that it is abbreviated. There is no sporocyst, the miracidium containing a developing redia which subsequently produces cercariae. The latter have a glandular head-organ, a ventrally-placed mouth and a ring-shaped intestine closed only by the pharynx; they encyst within the intermediate host (*Planorbis* spp., *Lymnaea* spp.). The fact that the adults live in cavities in direct contact with the outer air suggests that the Cyclocoelidae are intermediate between ecto- and truly endo-parasites. B.G.P.

(b) Freund notes that *Paraspidodera uncinata* is the only metazoan parasite normally occurring in the guinea-pig. Species of this genus also occur in the agouti and the cavy. B.G.P.

(c) Metz has successfully employed “Noemin” for horses and “Tativon” for pigs and dogs, against the ascarids which are so prevalent in these animals. He briefly explains the methods of dosing and of examining faeces for eggs by salt-flotation, and recommends to the German farmer Ransom's “Swine Sanitation System.” B.G.P.

201—Transactions of the American Microscopical Society.

- a. MANTER, H. W.—“A new family of trematodes from marine fishes.” LII (3), 233-242. [1933.]
- b. INGLES, L. G. & LANGSTON, C. I.—“A new species of bladder fluke from Californian frogs.” LII (3), 243-246. [1933.]
- c. MACY, R. W.—“A review of the trematode family Urotrematidae with the description of a new genus and two new species.” LII (3), 247-254. [1933.]
- d. HUNTER, W. S.—“A new strigeid metacercaria, *Neascus rhinichthysi*, n. sp.” LII (3), 255-258. [1933.]
- e. CROFT, J. W.—“A description of *Cercaria whitentoni*, n. sp.” LII (3), 259-266. [1933.]

(a) Manter has collected 5 species of trematodes from marine fish, for which she creates two new genera. They are *Thysanopharynx elongatus*, *Eurypera pseudura*, *E. ovalis*, *E. orbicularis*, and *E. gynna* (syn. *Distomum gynna* Linton, 1907). She unites these two genera into a new family Euryperidae of the subdivision Allocreadiidae.

The family features are the lack of anus and cirrus sac and the presence of a peculiarly shaped pharynx, wide caeca, the anterior symmetry of the testes and certain modifications of the oral sucker. They agree with other Allocreadiidae in the general configuration of the excretory system, the small uterus entirely anterior to the ovary with few large, thin shelled eggs and in the general type of the vitellaria. The characters of the new genera and species are described and figured. P.A.C.

(b) Ingles and Langston describe *Gorgoderina multilobata* n. sp. from the bladders of *Rana boylei* and *R. aurora*. This species is characterized by the presence of distinctly lobed vitellaria and by the size of the egg. P.A.C.

(c) Macy describes *Urotrematulum attenuatum* n. g., n. sp. and 4 species of *Urotrema*, of which *U. minuta* is new. *Urotrematulum* differs from *Urotrema* in the lobed condition of the ovary and testes, the presence of a seminal receptacle and a long oesophagus and in the acetabulum being well anterior to the ovary. *Urotrema minuta* is distinguished from other species by its small size, relatively large ovary, testis and cirrus sac, and the distribution of the vitellaria which reach the anterior testis. P.A.C.

(d) Hunter describes *Neascus rhinichthysi* n. sp. from various species of *Rhinichthys*. It is distinguished by its hosts, by the presence of an acetabulum and a very large holdfast organ, by the smaller inner cyst and by a simpler reserve system. P.A.C.

(e) Croft describes in detail *Cercaria whitentoni* from *Helisoma trivolvis*. It shows close affinities with *C. brevifurca* and *C. bombayensis* in the presence of spines on the furcae and tail stem but disagrees in the detailed arrangement. It also agrees in the presence of a dorsal fin and an oral sucker in the form of a retractile penetrating organ and in the general form of the gut. There are some differences in the excretory system, particularly in the number of the flame cells. P.A.C.

202—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. LANE, C.—“The massive birth and destruction of *Microfilaria bancrofti*.” XXVII (1), 4. [1933.]

- b. STEWARD, J. S.—“Preparation illustrating the life history of the filarial worm *Onchocerca cervicalis* of the horse.” xxvii (1), 6-7. [1933.]
- c. MACHATTIE, C., MILLS, E. A. & CHADWICK, C. R.—“Can sheep and cattle act as reservoirs of human schistosomiasis?” xxvii (2), 173-184. [1933.]

(a) Lane exhibited sections of a lymphatic gland made by O'Connor showing an adult female *Filaria bancrofti*, with numerous microfilariae in the surrounding tissue. Many of these were fragmented and showed calcareous degeneration.

R.T.L.

(b) *Onchocerca cervicalis* is associated with fistulous withers in horses. Working on infected horses in England, Steward has obtained the various stages of development up to the infective emerging stage in *Culicoides nubeculosus*.

R.T.L.

(c) The differentiation of *Schistosoma bovis* and *S. mattheei* by Blackie is held by MacHattie, Mills and Chadwick to be of little value in the light of their review of the literature. They also claim that Blackie failed to produce any convincing evidence that cattle and sheep constitute a potential reservoir of human urinary schistosomiasis due to *S. mattheei*. The authors have studied *S. bovis* and *S. haematobium* in Iraq, and conclude that *S. bovis* does not infect man nor does *S. haematobium* infect sheep. The occasional occurrence in human urine of *bovis*-shaped eggs is held to be due to some abnormality in the formation of the egg-shell of *S. haematobium*. A female *S. haematobium* measuring 28 mm. long and containing 106 eggs *in utero* is recorded.

R.T.L.

203—Verhandlungen der Deutschen Zoologischen Gesellschaft.

- a. SCHUURMANS STEKHOFEN, jr. J. H. & CONINCK, L. A. de.—“Morphologische Fragen zur Systematik der freilebenden Nematoden.” xxxv, 138-143. [1933.]

(a) The difficulties of drawing up a sound scheme of classification for the free-living nematodes are stressed by Schuurmans Stekhoven and de Coninck.

The nervous, muscular, and excretory systems, for instance, are insufficiently known to be of great use. The mouth and oesophagus and the male reproductive accessories form valuable criteria, as do also the amphids, the type of symmetry of cephalic papillae or spines, and cuticular sculpture. Thus 3 main types of amphids can be distinguished and on this basis the authors have suggested a diagrammatic scheme involving a number of genera. Pushed further, the same method has led to a classification, also supported by a consideration of the other morphological features, of the groups Araeolaimoidea, Chromadoroidea and Monhysteroidea.

B.G.P.

204—Veterinary Bulletin. Washington.

- a. SLATTER, E. E. & GRAHAM, R.—“Horse parasite control in Illinois.” xxvii (1), 21-28. [1933.]
- b. THOMPSON, A. T.—“Carbontetrachloride in the treatment for internal parasites of the horse.” xxvii (3), 261-263. [1933.]

(a) The results of an attempt in 1932 to suppress parasitic infestation of horses by systematic annual treatment during December and January on

Illinois farms are recorded by Slatter and Graham. Over 200 veterinarians treated more than 136,235 horses, representing over 75 per cent. of the horse population, in 66 different Illinois counties. The cost averaged 0.40 cents per head. R.T.L.

(b) Thompson gives the routine followed at the Remount Depot at Fort Royal, Va., in the treatment of horses for strongyles and ascarids. All bedding is removed and the animals are fasted for at least 18 hours but water is allowed. Food and water are withheld for 2 hours after treatment and the animals are then turned out to pasture. 50 cc. of carbon tetrachloride and 8 ozs. of Glauber's salt is considered a sufficient dose for the average riding type of horse. Both are administered by a stomach tube. The dose of Glauber's salt is dissolved in 800 cc. of water. This treatment necessitates only one handling of the animal. R.T.L.

205—Veterinary Journal.

a. TAYLOR, E. L.—“Notes on worms in foxes.” LXXXIX (1), 20-23. [1933.]

(a) The most troublesome of helminths in foxes kept under farming conditions are the lungworms *Capillaria aerophila* and *Crenosoma semiarmata* in which the life histories are direct without intermediate hosts. Others of importance are hookworms and ascarids. Taylor is of opinion that sanitation is more effective than medication in their control. Wire floors are useful but those of cement or wood made on the slope are favoured to-day. They should be cleaned thoroughly every second day. Attention is required chiefly by the young animals as the adults usually acquire sufficient natural resistance to protect them from serious harm. R.T.L.

206—Wiadomości Weterynaryjne.

a. OBITZ, K.—“Robaki Pasożytne szczurów na terenie M. Warszawy.” [Les helminthes des rats sauvages sur le terrain de Varsovie.] No. 158, pp. 361-368. [1933.]

(a) Obitz surveys the helminth parasites of *Rattus norvegicus*, captured in the Zoological Gardens and market buildings of Warsaw, as revealed by examinations of 100 wild rats of all ages.

Rats known to subsist on fish harboured *Euparyphium spiculator* and the author therefore infers that fish act as vectors. Records of distribution, *inter alia*, lead him to believe that *Hymenolepis nana* var. *fraterna* and *H. longior* are identical. 9 rats harboured *Trichinella spiralis* and 1 harboured *Strongyloides ratti*, a form claimed by Obitz as hitherto unrecorded from Europe. 13 rats were entirely free from parasites. J.N.O.

207—Wiener Klinische Wochenschrift.

a. BRÜNAUER.—“*Trichocephalus dispar* und Neurodermitis.” XLVI (26), 812-814. [1933.]

(a) Brünauer tentatively ascribes a case of neurodermatitis of the arms, back and chest, to infection of the intestine with trichuris. Alcoholic extract of powdered worms injected subcutaneously produced not only a delayed reaction after 24 hours but also an exacerbation of the neurodermatitis.

Complement-fixation was positive. The author compares the present skin lesions with those recorded from time to time in patients harbouring ascaris and oxyuris.

B.G.P.

208—Zeitschrift für Fleisch- und Milchhygiene.

- a. OSTERTAG, v.—“Das Verfahren von Prof. Iwanizky zur Prüfung der Übertragungsfähigkeit gesundheitsschädlicher Finnen am Menschen.” XLIII (10), 188-190. [1933.]

(a) Von Ostertag recounts a method, devised by Prof. Iwanizky and explained by him in the Russian journal *Cholodilnoe Delo* (1932, No. 516), for testing the viability of cysticerci infective to man. Pieces of meat containing cysticerci are sewn into small silk bags and swallowed by a man; they are recovered from his stool, opened and examined, when non-viable cysticerci will be found to have been digested whilst viable ones are unharmed. The method may prove useful in testing the effectiveness of freezing, or otherwise treating, infested meat. Iwanizky's experience is that, when the bags are swallowed by dogs, cysticerci infective to man are digested whether viable or not.

B.G.P.

209—Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere.

- a. LUBIMOV, M. P.—“Riktularioseseuche bei Affen des Moskauer Tiergartens.” XLIV (4), 250-260. [1933.]
 b. LÜHRS, E.—“Verlauf der Leberegelseuche in Oldenburg und ihre Bekämpfung.” XLIV (4), 281-308. [1933.]

(a) Lubimov describes and figures *Rictularia alphi* n. sp. parasitic in various monkeys, from S. America, S.E. Asia and Africa, which died at the Moscow Zoo. The worms evoked marked pathological changes, particularly in the duodenum where nodules were formed up to the size of a walnut. The 19 species of *Rictularia* are differentiated in a table.

B.G.P.

(b) Lührs has given an account of long-term observations and control-measures for liver fluke disease in cattle in Oldenburg. He has rarely been able to find *Lymnaea truncatula* in the district and thinks another carrier must be involved. The time elapsing before fluke eggs hatch varies between 10 and 22 days, according to temperature; the entire life cycle under optimum conditions occupies about 5 months. The local incidence of the disease, together with meteorological data, are presented for the years 1924-1931, and results of dosing cattle and treating pastures chemically over 3 years are discussed.

B.G.P.

210—Zeitschrift für Parasitenkunde.

- a. STAMMER, H. J.—“Eine neue eigenartige Cestodenlarve: *Cysticercus* (*Cercocystis*) *mirabilis* nov. spec. aus *Daphnia magna*.” VI (1), 76-90. [1933.]
 b. HSÜ, H. F.—“On *Dracunculus houdemeri* n. sp., *Dracunculus globocephalus*, and *Dracunculus medinensis*.” VI (1), 101-118. [1933.]
 c. MIRZA, M. B.—“On a new nemathelminth from *Herpestes mungo*.” VI (1), 145-146. [1933.]

(a) Stammer describes a hitherto unobserved cercocystis, *Cysticercus mirabilis* n. sp., exclusively infesting *Daphnia magna* during June and July, from three localities in Silesia.

The form is distinguished from other known divergent cysticeroid types by the enormous development of the tail, which may reach 5.2 cm. in length, and lies free in the body cavity of the *Daphnia*, the head near the posterior region of the gut and the caudal appendage coiling as far forward as the host's digestive glands. Only 0.01 to 0.02 per cent. of *Daphnias* examined were infested and parasitism does not affect the vitality of the host in which the haemolymph becomes brown-black in colour, the fat body is modified and the ovaries degenerate and finally disappear completely. Infection experiments on domesticated and wild ducks and examinations of water birds failed to reveal the adult cestode, which is considered to be probably a *Hymenolepis* or *Aploparaksis* species. J.N.O.

(b) Heretofore *Dracunculus medinensis* Linnaeus and *D. globocephalus* Mackin 1927 were the only well authenticated species of guineaworm.

Now Hsü describes a third species *D. houdemeri* n. sp. from a snake *Natrix piscator* killed in French Indo-China. Hsü is inclined to assume that *D. dahomensis* Neumann is identical with *D. medinensis* and the specimen from *Naia tripudiens* identified by Turkhud as *D. medinensis* is *D. houdemeri*. The paper gives a detailed study of the mouth parts and of the histology of the oesophagus of *D. houdemeri*. R.T.L.

(c) Mirza briefly describes what he assumes to be a remarkable new nematohelminth possessing both acanthocephalid and nematode characters and places it in a new class, Serratosomata, under the name of *Diserratosomus mungoosii*.

Peculiar features are the possession by the worm, found attached to the intestinal mucosa of a mongoose (*Herpestes mungo*), of a double row of 42 dorsal cuticular spines, all directed forward, along the length of the body, a proboscis without hooks and a distinct gut. The author quotes Prof. Leiper's opinion that the worm is merely a broken fragment of a nematode similar to *Rictularia*, but does not accept this view. J.N.O.

211—Zentralblatt für Bakteriologie. Abteilung I. Originale.

- a. DOERR, R. & MENZI, E.—“Studien über den Mechanismus der Trichineninfektion. VIII. Mitteilung: Vergleichende Untersuchungen über die Empfänglichkeit der Ratte und des Meerschweinchens für die Infektion per os.” CXXVIII (3/4), 177-188. [1933.]
- b. LÖRINCZ, F.—“Die Rolle der Katze in der Verbreitung der Echinococcosis.” CXXIX (1/2), 1-11. [1933.]
- c. MATERNOWSKA, I.—“Intradermale Hautreaktion bei Trichinose.” CXXIX (3/4), 284-301. [1933.]
- d. ÖRLOFF, I. W., DAVTJAN, E. A. & LUBIMOW, M. P.—“Beitrag zur Umgestaltung der Systematik der Nematodengattung *Oslerus* Hall 1921.” CXXIX (3/4), 301-303. [1933.]
- e. SZIDAT, L. & SZIDAT, Ü.—“Beiträge zur Kenntnis der Trematoden der Monostomidengattung *Notocotylus* Dies.” CXXIX (5/6), 411-422. [1933.]

(a) Doerr and Menzi make some observations on the susceptibility of the rat and the guinea-pig to *Trichina* infection.

In the rat, muscle invasion can be demonstrated after feeding only 2 or 3 *Trichina* cysts but this is not so in the case of the guinea-pig. When from 10-40 cysts were fed, however, a small percentage became trichinosed. In

both animals, muscle invasion could be demonstrated after very heavy feedings (1,000 or more). The authors were unable to correlate the degree of muscle invasion with the number of cysts fed. P.A.C.

(b) This paper by Lörincz, on the rôle of cats in the spread of echinococcosis, is a translation into German of the Hungarian original [see Helm. Abs. II, No. 181a]. B.G.P.

(c) Maternowska has carried out detailed tests of the intradermal reaction in trichinosis in man, pig, rabbit and guinea-pig, from which she concludes that the reaction is specific and therefore valuable as a diagnostic technique. Carriers of trichinella were always positive to trichinella antigen and negative to ascaris antigen, and non-carriers were always negative to trichinella antigen. In man there are usually an immediate reaction (papule-formation) and a delayed reaction (infiltration) but in experimental animals the two phases tend to coincide, except where the infection is of long standing. In animals a positive reaction can be obtained on the fifth day after infection. B.G.P.

(d) Orloff, Davtjan and Lubimow discuss the systematics of the genus *Oslerus* Hall, 1921. They agree with Skrjabin (1933) that it should become a subgenus of *Filaroides* v. Beneden, 1858, with *F. (O.) osleri* as type and *F. (O.) osleri brumbergi* Orloff, 1933 as a subspecies. They find that *O. felis* Vogel, 1928 and *O. cynopithecii* Vogel, 1928 differ from it in having the oesophagus divided into two parts, and therefore propose *Osleroides* n. g. with *O. massino* Davtjan, 1933 (type) and *O. felis* in a new subgenus *Osleroides*. and *O. cynopithecii* in a new subgenus *Vogeloides*. The new genus and subgenera are diagnosed. B.G.P.

(e) L. and U. Szidat consider that the number and arrangement of the ventral gland-groups in the *Notocotylidae* form useful specific characters. They describe *Cercaria vaga* n. sp. from *Lymnaea palustris*, which in ducks grew into the adult form *Notocotylus attenuatus* Rud., and compare it with *Cercaria ephemera* Nitzsch from *Planorbis corneus*, which grew into a new form *N. Thienemanni* n. sp. B.G.P.

212—Zoologischer Anzeiger.

- a. BRUYN, W. M. de.—“Beiträge zur Kenntnis von *Strongylus circumlitus* Railliet aus den Lungen des Seehundes: die neue Gattung *Otostrongylus*.” CIII (5/6), 142-153. [1933.]
- b. ALLGÉN, C.—“Über einige frei lebende Nematoden aus dem Niederkongo.” CIII (11/12), 312-320. [1933.]
- c. OZAKI, Y.—“*Telotrema caudatum* n. g. n. sp., ein neuer Typus der Trematodenfamilie Gyliachenidae (Goto et Matsudaira).” CIII (11/12), 329-332. [1933.]
- d. FUKUI, T.—“*Teloporia* (Tremat.)=Opisthoporus.” CIII (11/12), 332-333. [1933.]

(a) de Bruyn creates the new genus *Otostrongylus* for the reception of *Strongylus circumlitus* (Railliet, 1899) from the lungs of *Phoca vitulina*. The distinguishing characteristic is seen in the two ventral processes on the dorsal rays of the male bursa. She describes and figures the worm and discusses its systematic position, and its differences from closely related genera. P.A.C.

(b) Allgén has described and figured 6 new species of free-living nematodes obtained from the lower reaches of the R. Congo. The new species are

Cyatholaimus oestospiculum, *Euchromadora aetiopica*, *Cylindrolaimus filicaudatus*, *C. abnormis*, *Actinolaimus palmaeri* and *Aphelenchus kongoensis*. He also describes young forms of a species of *Mononchus* and *Dorylaimus* and of *Prismatolaimus intermedius*.
P.A.C.

(c) Ozaki describes *Telotrema caudatum* a new genus and species belonging to the family Gyliachenidae. *Telotrema* differs from *Gyliachen* in the elongated shape of the prepharynx, the structure of the cirrus sac and the appearance of the region containing the genital openings. The shape of the posterior end is very characteristic. The fluke was recovered from the gut of *Xesurus scalprum*.
P.A.C.

(d) Fukui suggests the generic name *Teloporia* for a trematode which he obtained from the oviduct of *Trionyx aspidonectes ferox*. He originally (1929) called it *Opisthoporus* but Price points out that this name is already in use for a genus of Molluscs. The characters of the genus are briefly given.
P.A.C.

NON-PERIODICAL LITERATURE.

- 213—GOODEY, T.—“Plant parasitic nematodes and the diseases they cause.” London, 306 pp., 136 figs. [1933.]

Goodey compresses within a single volume a comprehensive account of all the eelworms parasitic upon plants, and the diseases of which they are the cause.

A morphological description and account of the geographical distribution and life cycle, together with the host range, disease symptoms and pathology, is given for each species. The technique necessary for diagnosis is described, and the present position with regard to some of the wider scientific problems presented by these nematodes is summarized, while such control measures as are known are briefly described. The book is abundantly illustrated by both line drawings and photographs of diseased plants, and has a comprehensive index to numerous bibliographical references.
M.J.T.

- 214—SPREHN, C.—“Trematoda,” in Grimpe, G. & Wagler, E., “Die Tierwelt der Nord- und Ostsee.” Leipzig, Lieferung 24, 60 pp., 20 figs. [1933.]

Sprehn has monographed the Trematoda for Grimpe and Wagler’s “Die Tierwelt der Nord- und Ostsee.” This section comprises a general account of the group, a differential table of genera, a brief systematic review of genera and species, giving hosts and references and containing 20 illustrations, and finally a bibliography.
B.G.P.